

**RECORD**

F. R. Fosberg  
field book no. 63  
no. 42181 - 42511

Collection and Library Work		Date
(cont'd. from page 26, 1965)		Oct. 30, 1965
(cont'd. from page 26, 1965)		(cont'd.)
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Specimen Collection #5560		1960-1961
Dillon Airport-County		1960-1961
Specimen Collection #5541-45520		1960-1961
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Rockies Hill .... 45521-45524		1960-1961
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Lignite (Phipps Rose) .... 45310-15346		1960-1961
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Hartington Valley		
Spokane Valley		

Collection and Field Note Book

No. 63

(Sept. 30, 1961 - June 26, 1962 )

(42181 ----- 42511)

Virginia

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DR. R.F. FOSBERG

*Mrs. David Ord Alexander*

2017 QUE STREET, N. W.

WASHINGTON 9, D. C.

Dear Dr. Fosberg,

Here are the maps, traced from the big air photo map and reduced. Approximate boundaries of the reserve are marked with broken line.

On my original map, I shaded the forested area. Unfortunately, the shading was completely lost in the reproductions. Only the borderline of them came out. On one of your maps, I've indicated this area. I've also put red X's at the pond and one or two other places so that you can orient yourself more quickly.

I hope the maps are ~~xxx~~ useful. I've got more if you have need for them.

Hope to see you Sunday. I may not be able to get away before Sunday morning myself, but will try to phone you when my plans are definite.

Sincerely,

*Jocelyn Alexander*

F. R. Fosberg  
field book no. 63  
no. 42181 - 42511



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A BOORUM & PEASE PRODUCT

1961 Virginia Shen. Nat. Park 1

Sept. 30 - between Pinnacles  
Overlook and m.p. 36 -

Fairly level to gently  
sloping rocky place -  
large colony of *Osmunda*  
*claytoniana*? Fertile fronds  
rare, fronds mostly  
dying as though  
they had been lightly  
frozen.

Sept. 30 Jewel Hollow  
Overlook, Rocky Knob  
with *Quercus rubra*,  
*Carya* sp., *Tilia americana*,  
var. *neglecta*.

*Polyodium* on rocks,  
also abundant *Sedum*  
*telephroides*, rather  
attenuated because shaded.

2

## 1961 Virginia

Labels  
typed

- Sept. 30 - Thornton River,  
just inside Park Boundary  
above Berryville
- 42181 *Broussonetia papyrifera* (L.) Vent.  
forming a thicket in  
second growth woods.

Sept. 30 about  $\frac{1}{2}$  mi. w. of  
Pinnacles Overlook on  
Skyline Drive  
in woods on flat nearly  
flat very rocky ground.

- 2 82 *Thelypteris noveboracensis*  
common

- 4 83 *Osmunda claytoniana*  
abundant locally

- 2 84 *Solidago*  
occasional

Sept 30 - near milepost 47  
on Skyline Drive, ~~east~~ south  
slope of Hawksbill  
in small wet marshy  
seeps above drives, open.

- 1 85 *Spiranthes cernua*  
abundant in this one spot,  
not seen outside the wet ground

- 1 86 *Liparis*  
occasional

- 4 87 *Hydrocotyle americana*  
common

- 3 88 Carex?  
abundant

## Shenandoah National Park

small trees 5-8 m. tall,  
sterile.

rhizome creeping, fronds erect.  
rosettes of almost  
erect fronds, now mostly  
dead or almost so,  
fertile fronds rare.  
rays yellow.

3500'

1070 m

erect, flowers white,  
odorless, glistening  
around orifice, in four  
somewhat spiral rows.

main stem erect, branched  
producing long filiform stolons.  
stems very weak

*Collected  
by* 4 1961 Virginia

- 42189 *Crataegus*  
3 edge of woods, edge of wet ground  
3 90 *Juncus*  
common

Sept. 30 - Jewel Hollow  
Overlook, Phyline Drive  
on shaded, moist  
trampled rocky ledge

- 3 91 *Bidens frondosa*  
common  
1 92 *Polygonum*  
occasional  
4 93 *Agrostis*  
abundant

Oct. 1 - Black Rock Shelter  
headw. n. fork Monmans R.

~~is deep~~ ~~soil~~  
in second growth mixed  
oak woods.

- 2 94 *Aster*  
common  
2 95 *Solidago*  
local on steep ravine wall  
4 96 *Solidago caesia*  
common on steep ravine walls  
2 97 fungus  
on *Solidago caesia*  
1 98 *Malaxis unifolia*  
very rare on rocky slope  
3 99 *Muhlenbergia*  
occasional along trail  
42200 *Campanula*  
occasional on steep rocky slope

Shen. Nat. Park

shrub 2 m. tall, fruit  
scarlet.

5

825 m  
2700'

rays white, disk turning reddish.  
flowers yellow  
stem scarcely glaucous.  
flower bright yellow.

pseudobulb white.  
loose tufts, decumbent at base.  
prostrate

Sabattier  
Sept 6

1961 Virginia

42201 *Liatris*

2 occasional on steep rocky slope

1 02 *Anemone*

occasional on steep rocky slope

2 03 *Aster*

common on steep rocky slope

Oct. 1 - Payne Run, about

1 mile above the Horse Head.

in bare rocky stream bed

3 04 *Chelone glabra*

~~near~~ in crevices in bedrock

3 05 *Osmunda cinnamomea*

in crevices in bedrock

3 06 *Thelypteris palustris* var. *pubescens*

in crevices in bedrock

3 07 grass

common in crevices in bedrock

2 08 *Polygonum*

occasional in ~~sand~~ gravel

3 09 *Commelinia communis* var?

common in gravel

1 10 *Leersia virginica* Willd.

rare in gravel

same - on mossy banks of stream

1 11 *Folida*

rare

4 12 *Muhlenbergia*

common

3 13 (grass)

common

460m  
1500'

Shen. Nat. Park

7

erect

flowers yellow, throat  
and tube glabrous within.  
ray flowers bright lavender,  
~~yellow~~ dish <sup>yellow</sup> dark  
turning red.

many ~~branches~~ stems  
from base; flowers white,  
faintly fragrant, visited  
by bumble-bees.

leaves on sterile shoot,  
conspicuously distichous  
flowers white.

stems fleshy, ascending.  
ascending

culms and panicle, erect.

culms erect, panicles  
(or spikes) drooping.

8 1961 Virginia

Oct. 1 - edge of Park along Clinch  
Fire Road, s.w. of Davis Mt.

42214 *Solidago*

common in fine silty sand  
soil in second growth mixed  
oak forest

Oct. 1 Black Rock shelter  
headwaters of N. Fork Moonman R.  
in thin second growth  
forest on steep rocky slope

\* 15 *Andropogon scoparius* L.  
common

4 16 *Helianthus*  
common

2 17 (grass)  
common

Shen. Nat. Park

9

erect, flowers bright  
yellow.

- tufts, culms and  
inflorescence very erect,  
culms wine color.  
roots long, fleshy.

Oct. 7 - 1 mi. n. of jct. of  
rt. 29 and rt. 629, or rt. 29, mi. n. of  
Charlottesville, Albemarle Co.

Small group of hills  
with second-growth  
woods, largely pine in  
some parts, mostly *P.*  
*virginiana*, some others.

Would be worth investigating

Oct. 7 - rt. 29 patch of woods  
just s. of Rivanna R.  
good low deciduous forest  
on e. side of road.

Another patch just out  
of Charlottesville <sup>near</sup> bypass (250)  
on rt. 29 on s. side.

Oct. 7 - hills south of  
Charlottesville on road to  
Lynchburg (rt. 29) seem to  
be largely of massive  
rather dark granite. Covered  
by a scrubby oak forest.

Hills just south of this  
have more hickories than  
oak - just n. of Hardware River.  
South of this hills have  
mosaic of oak, scrub pine,  
tulip, and mixtures.

*Nyssa* and *Corneus* are turning  
red - others still green.

Valleys in this range  
of hills are generally  
cleared mostly in  
meadow or pasture,  
willows, walnuts,  
*Platanus*, etc. along  
streams. Lower slopes  
are clearings but being  
strongly invaded by  
pines and other trees  
and shrubs. Upper slopes  
densely wooded with  
tulip and oaks.  
Covesville.

Area becomes more and  
more wooded southward.

4 mi. n. of Lovingston -  
high wooded hills.  
one on right has a steep  
rock slope where the  
forest is thin and scrubby,  
compared with surrounding  
areas, and changing  
color, where surrounding  
areas are green.

Lovingston -  
Tulip shows up as patches  
on hills, no apparent  
meaningful pattern.

Oct. 1 Sweet Briar College  
Oak Hickory forest  
30-40' m tall, but rather  
opened up by 1955  
hurricane which  
knocked down 400+ large  
trees.

Opening resulting  
from old compost heap-  
leaves, etc. Large dead  
tulip trees. Stopped  
dumping and removed  
most of rubbish about.  
1 year ago. Paulownia  
and Ailanthus seedlings  
only, otherwise weed,  
Phytolacca, Ambrosia, Erechtites,  
Polygonum, etc. etc.  
Chenopodium

Trees up to 6 dm. dbh.

*Quercus alba*

*Fagus*

*Siniodendron* (to 34" dbh)

*Carya* sp.

*Nyssa*

*Magnolia tripetala*

*Corus florida*

*Fragaria*

*Acer rubrum*

*G. galactea*

*Diospyros*

ground covered by  
Limeeens with considerable  
shrub layer of *Corus*,  
seedlings of various trees  
*Lindera*, *Viburnum prunifolium*.

A few *Medeola*, *Dioscorea*,  
*Collinsonia*, *Anemone*,  
*Epifagus*, *Euonymus*,  
*Parthenocissus*, *Michelia*,  
*Gaultheria procumbens*,  
*Bryonia* vng. *Urolana*,  
*Cimicifuga*, *Polystichum*  
*laminea*

In thicker areas,  
though most trees  
are smaller, there are  
less, or even no honey-suckle  
more native herbs.  
Less *Rhus* too. also.

Photos of *Monotropa uniflora* f. roses

Across the road from the present  
natural area is a more  
degraded version of the same  
forest, much more damaged  
by the hurricane and to  
some cutting.

Between this and the lake  
is an area of lumbered  
young second growth  
that is being cut up into  
lots for faculty housing.

surrounded by elder  
Lake quite muddy.  
On n. side on ~~slope~~ area  
of *Pinus virginiana*  
*Sorocera*  
*Desmodium*  
*Rhus toxicodendron*

surrounded by  
open *Q. bicolorata* and  
*Q. alba*, tall with  
thick isramby &  
scrub forest undergrowth

Open field 25-30 years  
ago - 15-20 acres - now  
a thick stand of  
*Pinus virg.* to 8-10 m. t.  
Canopy thin but continuous  
flor grassy, a little  
patchy honeysuckle  
Abundant tiny oak  
and hickory seedlings, some  
larger ones under  
a few spindly  
junipers, some small  
*Cornus*, *Prunus serotina*, *Amelanchier*  
several *Solidagos*,  
*Anemone virginiana*  
*Desmodium* sp., *Solanum*  
*carolinianum*,  
*Panthoxis* sp., *Lonicera*  
*Polystichum*, *Lactuca*,  
*Helianthus*, *Gaulium*  
*triflorum*, *Chionophila*

Oct. 8 - Lynchburg - just out  
of town on rt. 460 west, a patch  
of *Solidago speciosa*. Found  
in about 5 counties, called  
"bull weed" because bulls can  
eat it with no harm, but  
it is said to cause abortion  
in cows. Experiments carried  
out at V.P.I. gave inconclusive  
results.

Oct. 8 Blue Ridge Parkway <sup>3150'</sup>  
road to Hale's Fork - Floyd's Field  
Live chestnut tree about 15 m.  
dbh. Infected with blight,  
some branches dead,  
but tree surviving, 8-10 m.  
tall. Bark apparently  
growing fast enough to  
keep ahead of fungus.  
Leaves attacked by a  
skeletonizing larva.  
3 or 4 such trees known  
near Peaks of Otter.

*Gentiana quinquefolia*  
up to 0.5 m. tall, in thin  
woods.

Along the road a distance,  
on rt. fork, a large stand of  
*Petula lenta* 10-15 m. tall,  
10-15 cm. dbh. 1.5-3 m. apart.  
A shrub layer 1-3 (4 m.) of

*Prunus serotina*, *Acer*  
*rubrum*, *Cornus florida*  
 a few *Tsuga*, *Quercus*  
*grisea*, *Rubus allegheniensis*,  
*Fraxinus americana*, *Quercus*  
*rubra* (?), *Liriodendron*,  
*Pinus strobus* (very small,  
 0.5 m.), *Castanea* sprouts,  
*Nyssa*, *Robinia* (?)

Quite a few herbs.

Soil fine, dark,  
 not rocky.

Forest intermixes as  
 stand which came  
 in after abandonment  
 of field by man who  
 had cabin near here.

W.B. Russell & Robt. Adelie Russell  
 Nature Reserve.

*Fagus* sp., *Acer rubrum*  
 white & black oak, *Q. prinoides*  
 with *Nyssa*, *Oxydendrum*,  
*Diospyros*, *Liriodendron*,  
 second growth, mostly  
 small up to 10-15 cm. but  
 scattered larger trees up  
 to 30-40 cm.

Thin shrub layer  
 of tree seedlings.

Dwarf shrub layer *Vaccinium*, *Gaylussacia*.

Thin ground layer  
 of herbs and seedlings.  
*Isarum virginicum*, *Stephanotis*

Large numbers of  
 large chestnut stumps.  
 quite a few trees with several  
 trunks.

Wedge-shaped area of  
 recently almost clear cut  
 forest. Almost nothing  
 left bigger than 6 cm.  
 Cutting was finished  
 last year. *Oxydendrum*  
 very common here. Rather  
 good cover of blueberries except  
 on logging roads.

On e. slope form  
*Cornus florida* and  
*Less Oxydendrum* in  
 secnd story. *Fagus*.

On flat in thin oak  
 woods - *Q. alba*, *Q. coccinea*,  
*Q. prinus*, *Acer rubrum*  
 thin evergreen layer.  
*Mitchella hypoleuca* var.  
*rubra* common. None of  
 other var. seen.

Oct. 7. Sweet Briar College

in second growth woods

42218 *Lobelia inflata*

occasional

19 *Lobelia*

Oct. 14 - Bull Neck Run

Rt. 615 + Old Georgetown Rd.

✓ Labels  
20<sup>by</sup>  
typed by  
W.K.

1961 Virginia

Oct. 14 - Yellow Falls, Potomac River

on tiny flood plain, shaded

42220 Aster

✓ 4

Oct. 14 Bullneck Run, gold  
mine Road, Potomac River.  
On eroded, shaded  
banks of old road in  
deciduous forest on  
dissected slope

✓ 21 Solidago caesia  
occasional

✓ 22 Aster

common

✓ 23 Solidago flexicaulis L.  
rare

✓ 24 Aster

Oct. 14 -

in deciduous forest

✓ 25 Aster

rare

✓ 26 Aster  
common

on edge of eroded road

embankment in pine

forest with heavy deciduous undergrowth

✓ 27 Solidago caesia  
common

Fairfax Co.

21

rays white, disk reddish

flowers yellow

rays white, disk dull  
reddish green.

flowers yellow.

rays lavender, disk  
reddish.

rays bright lavender,  
disk reddish

rays pale lavender,  
disk very pale yellow,  
turning reddish

flowers yellow

22

42228 *Aster lateriflorus*

✓ 16 common

✓ 28 *Aster lateriflorus*  
common on base of embankment✓ 30 *Aster*✓ { 31 *Aster*

✓ 32 ..

✓ 33 ..

✓ 34 ..

✓ 35 ..

✓ 36 ..

✓ 37 ..

common

✓ 38 *Aster*  
occasional✓ 39 *Aster*  
occasional✓ 40 *Prenanthes Serpentaria* Pursh Det. J. Bell  
rare along road

23

rays white, disk red

rays white, disk ~~red~~  
yellow turning red.  
plant 1 m. tall divaricately  
branched.rays bright lavender,  
disk reddish.rays lavender, disk  
turning red.rays purple, disk  
deep brick red.rays lavender, disk  
turning red.erect plant, 1.3 m. tall,  
upper third panicle  
with ascending branches,  
clusters of heads ~~pendent~~  
pendent.

24

1960 Virginia

Oct. 15 - Dulles Airport,  
Chantilly  
road along south side  
perpendicular to Rt. 50.

Planted grass on strip  
on both sides of road -  
On west end - alfalfa  
On east end *Setaria* sp.  
with mustard.

Fields away from road  
rather brown. Asters  
abundant locally.  
Solidago mostly past  
flowering.

At east end 3 asters -  
*A. ericoides*, *A. pilosus*, and  
a broad leaved white one,  
growing together.

Just west of this, in  
a field at least 4 forms  
of white ones, a pale lavender.  
None collections than that.

Well west of this, in thin  
oak-hickory woods *A. latiflora*  
rare, another common  
somewhat variable, this  
possibly 2-3 birds.

Here in a power line  
right of way a tremendous  
swarm of hybrids

Fairfax Co.

25

bet. *A. lateriflorus* and  
one or two purple ones.  
In less recently disturbed  
area the plants are in  
tall, lower lvs. mostly  
dry. In recently scraped  
area plants smaller,  
leaves less dry, mostly  
still green. Colors vary  
from white to mostly  
purple.

Oct. 15 - 4.5 mi. w. n.w. of Kamp,  
Washington, about 2 mi  
e. s.e. Chantilly

weedy roadside with  
abundant *Aster novae-*  
*angliae*, deep purple, and  
*A. ericoides*, *A. pilosa* and  
a rare lavender one.  
no very apparent hybridization.

26

## 1961 Virginia

Labels  
typed  
42241-  
42294  
42294

- Oct. 15 - 2 mi. e.s.e. of Chantilly  
 42241 ~~weedy~~ roadside  
 42241 Aster pilosus Willd. (intern. var. pilosus - common var. demotus) det. L.H. Shinners  
 " 42 Aster novae-angliae L. det. L.H. Shinners abundant locally  
 2 43 Aster ~~ericoides~~ pilosus Willd. var. common demotus Blake det. Skinner rare  
 2 44 Aster prenanthoides Willd. det. Shinners rare  
 2 45 Aster pilosus Willd. (intermediate var. pilosus - var. demotus) det. L.H. Shinners  
 2 46 Aster novae-angliae L. det. L.B. Shinners abundant locally  
 1 47 Aster ericoides common

Oct. 15 - s.e. side of Dulles Airport, Chantilly

- 4 48 Aster undulatus L. det. L.B. Shinners common in thin oak-hickory wood  
 same - in <sup>weedy</sup> power-line right-of-way  
 1 49 Aster  
 3+50 Aster undulatus L. det. L.B. Shinners  
 2 51 Aster " " " " "  
 1 52 Aster  
 1 53 Aster  
 1 54 Aster  
 1 55 Aster  
 1+56 Aster  
 1 57 Aster lateriflorus  
 1 58 Aster

390'

120m

## Fairfax Co.

27

- rays white, disk yellow, turning slightly reddish.  
 rays deep violet; <sup>rhizon</sup> branched at base, tangled.  
 rays white, disk red.  
 rays pale lavender, disk turning reddish.  
 rays white disk turning reddish.  
 rays faded, brown.  
 rays white, disk yellow, turning reddish.

- rays lavender  
 rays deep lavender  
 rays lavender  
 rays lavender  
 rays lavender  
 rays lavender  
 rays pinkish lavender  
 rays deep lavender  
 rays white  
 rays lavender

28

1961 Virginia

- 42259 Aster  
 1 60 Aster  
 1 61 aster  
 4 62 aster <sup>UNDULATUS L.</sup> <sup>det. L. H. Shinners</sup>  
 1 63 aster <sup>on bare ground</sup>  
 1 64 Aster  
 1 65 Aster  
 1 66 Aster  
 1 67 aster lateriflorus  
 1 68 Aster lateriflorus  
 1 69 aster  
 1 70 Aster lateriflorus  
 x23 71 aster undulatus L. det. L. H. Shinners  
 1 72 aster lateriflorus  
 1 73 aster  
 x2 74 aster lateriflorus (L.) Britton det. <sup>L. H.</sup> Shinners  
 1 75 Aster lateriflorus  
 1 76 aster

Oct. 15 Dulles airport,  
 Chantilly, east end  
 in abandoned cultivated field

- 2 77 ~~Aster~~ <sup>a. e. side</sup> ~~ericoides~~  
<sup>spilosus</sup> Willd. var. <sup>ANNUUS</sup> <sup>demotus</sup> Blake <sup>det. L. H.</sup> Shinners  
 + 78 Erigeron <sup>strigosus</sup> Pers.  
 1 + 79 Erigeron strigosus occasional  
 80 ~~Erigeron~~!  
 3 80 Aster pilosus Willd. (intermediate)  
 common <sup>var. pilosus - var. demotus</sup> <sup>det. L. H.</sup> Shinners  
 3 81 Acalypha  
 on disturbed ground  
 2 82 Acalypha  
 on disturbed ground  
 2 83 Acalypha  
 on disturbed ground

Fairfax Co.

29

- rays lavender  
 rays bright lavender  
 rays white  
 rays white  
 rays lavender  
 rays white  
 rays lavender  
 rays white  
 rays deep lavender  
 rays bright ~~purple~~  
 rays white  
 rays white  
 rays pale lavender

- rays white, disk yellow, turning reddish.  
 rays white, disk yellow.  
 rays white, disk yellow.  
 rays white, disk yellow.  
 rays white, disk yellow, turning red.  
 leaves somewhat venulose,  
 - bracts green.  
 bracts green  
 bracts reddish

30 1961 Virginia

42289 *Aster lateriflorus* X *rimineus*?  
4 occasionalabandoned field  
~~in another field~~3 85 *Aster pilosus* Willd. var. *demotus*  
common Blake3 86 *Aster pilosus* Willd var. *pilosus*  
common4 87 *Aster rimineus* Lam. <sup>det.</sup>  
<sup>L.H.SHINNERS</sup> common1 88 *Aster*2 89 *Aster simplex* Willd. var. *simplex* <sup>det.</sup>  
<sup>L.H.SHINNERS</sup> rare rays white, disk yellowish, turning red.

in [another] abandoned field

4 90 *Aster ~~acoides~~ pilosus* Willd.  
var. *demotus* Blake3 91 *Aster pilosus* Willd. var. *pilosus*  
occasional (injured)2 92 *Aster pilosus* Willd var. *pilosus*  
~~common~~ rare

abundant on roadside

1 93 *Setaria viridis*2 94 *Digitaria*

Labels 42295-42297

Ost. 30 - Bleachy Hollow

95 *Quercus*in tall dense second growth  
of tulip, sweet gum, etc.  
in bottom land

Fairfax Co.

31

rays white, disk  
turning reddish.rays white, disk turning  
reddish.

rays white, disk reddish.

rays white, disk reddish.

rays white

rays white, disk yellowish, turning red.

rays white, disk yellow  
turning reddish.

rays white, disk red.

single stem, with  
long ascending branches.

racemes purplish

leaf sample from marked  
sapling #1, about in its  
5th year, 5' tall. 5 leaves  
from terminal whorls  
of lateral branches,  
3 from terminal whorl  
of leader.

32

1961 Virginia

42296 *Quercus*

same

1 97 *Quercus alba?*

same

Fairfax Co.

33

leaves from 1 year seedling <sup>the</sup>  
marked #2. + another seedling separate

leaves from 1 year  
seedling marked #3

34 1961 District of Columbia

Nov. 15 Washington  
near Capitol

✓ 42298 *Quercus rubra*

street tree

✓ 1 99 *Osmanthus*  
ornamental planting

35

straight well formed tree;  
leaves changing to brown.  
shrub, dark green;  
flowers white, very fragrant.

Nov. 30 - Bethesda

Montgomery Co.

✓ 42300 *Vaccinium atrococcum* (Gray) Heller  
in scrubby pine woods,

arching shrub 2 m tall,  
main stem at least 4 m long.

Dec. 9 Weems creek reserve. -  
Annapolis  
Deciduous forest of  
oaks, some tulip.

+ 30 m.

Very open second growth  
of *Cornus* and occasional  
*Ilex opaca*

A 2 m. layer less open,  
of *Ilex* and a few areas  
*ubuum*, *Prunus*, *acrotina*,

Heavy layer of *Canner*  
and a few low-bush  
*Vacciniums*.

Thin on relatively  
flat areas

Slope slopes down  
to creek with similar  
but somewhat lower  
forest, and a few *Pinus*  
*virginiana*.

Moss abundant on  
slope locally abundant  
but seedlings 1 m. tall  
on this slope. Not much  
else here.

strip of marsh along  
margin of creek, perhaps  
10-15 m. wide. *Spartina?*  
*Typha* (little)  
*Panicum virgatum* at upper edge.  
A tall *Rosa* with straight  
prickles.

Large ravine through  
center - tulip common.  
*Ilex* common. Some *Lonicera* japa.  
*Polystichum ac. on* sides.

Several smaller ravines

Many fallen trees  
esp. in central part.  
*Rubus phoenicolasius*?

Here a patch where all  
large trees are down -  
possibly from 1938 hurricane.  
Sprouts, *Paulownia*, etc.  
to 6-7 m. tall. Much  
*Lonicera*, etc. Many  
rotting logs.

It's very dense locally.  
locally almost none.

Occ. tiny plants of *Hedera*  
in highest hill.

1961 Maryland - New Jersey

Forest on Annapolis  
end is young. A few  
rotting stumps.

Much less here.

Dec. 20 - Baltimore Parkway  
just out of Washington.

Interesting pine woods  
that should be looked at.

pt. 9 east of  
Dec. 22 - Englishtown, N.J.

Soil is pale sand,  
approaching Lakewood  
type. General vegetation  
is deciduous, largely  
oak, tangled with  
smilax.

Very slightly higher  
spots have patches of  
pine (*P. rigida*), rather  
open, with irregular  
shrub layer of *Kalmia*  
*angustifolia*. Some *Smilax*  
*glauca*. Open places  
covered by pine needles  
and a layer of *Polytrichum*,  
*Senecio* (?) and *Cladonia*.  
*Betula populifolia* common.  
None of characteristic  
pine barren species present.  
Pines have a curious habit  
of sending out creeping  
branches at the ground surface.

Hill  
is poor  
with  
patches  
of oak  
or wood.

For about 1/2 mile south  
the country is about the  
same, except that occasion-  
ally there are fairly large  
farming areas.

Then there is some pine  
forest. A low hill has  
been cut away, mostly  
for road material. The  
cut shows very irregular  
cross bedding, unconformities,  
iron deposits, both consolidated  
and unconsolidated, and a  
gray podzol layer a few  
inches thick or just  
under the surface. In the  
are localized peat bogs  
and lenses. The general  
color of this cut is varying  
shades of orange brown.

The texture is a variable  
mixture of sand and  
small gravel-pebbles  
mostly 1-2 cm. up to 4 cm. but  
rarely. One rounded quartz  
boulder about 25 cm. long seen.  
Most of pebbles quartz.  
Some fragments of ironstone.

Across road is a  
semi-open forest of oak,  
a few pine saplings  
a dwarf scrub underlayer  
of *Vaccinium*, *Glycyrrhiza* etc.  
Tangled & similar.

Just n. of intersection of  
Rt. 9 & 470 - Open pine with  
a shrub layer 2 m. tall  
of *Quercus ilicifolia*.

(Photos). Some larger oaks.  
A dwarf shrub layer  
of *Vaccinium*, etc. very  
well developed.

White sand.

This generally on low  
ground. On slightly higher  
ground the larger oaks become  
more numerous, the Bear  
oak layer becomes very  
spars, also the *Vaccinium*  
layer.

Along the edge of the road  
are prostrate pines such  
as are common on "The Plains".  
The young shoots have the  
bracts developed into needles  
and fascicles of needles lacking.

North of here toward Lakehurst  
is an area of burned over  
pine barrens on and around  
a low hill of white sand.

The pines are injured to  
various extents - mostly  
are recovering. Other woody  
plants eliminated, except  
for dwarf scrub of  
*Kalmia angustifolia*,  
*Hudsonia*, etc. in mosaic.

On hill is a low scrub  
between the sparse pines  
of *Quercus ilicifolia*.  
*Hudsonia* and *Lixidionthus*  
common. (Photos).

A bit farther on, flat  
ground with open pine  
and a solid layer of  
*Quercus ilicifolia* 1-1.5  
m. tall (Photos) on one  
side of road, irregular  
mostly young almost  
closed pine with taller  
*Q. ilicifolia* on other side (photos).

south of Lakehurst on  
Rt. 537 a low area has  
some fair *Chamaesycepsis*  
swamps. (Photos). Opening  
have *Carex* tufts. *Sphagnum*  
and *Vaccinium macrocarpon*.  
Much *Ilex glabra*. Probably  
heads of n. branch Cedar Cr.

Farther south, on slightly  
higher ground - fairly  
dense pine forest with  
a 2-3 m. tall layer of  
scrubby oaks. Forest 2-5 m.  
tall, (Photos), almost closed.  
Prob. in Greenwich Forest.

south of Warren Grove  
is a large area of "Plains"  
with a closed stand of

*Pinus* ~~taeda~~ rigida about 1 m. tall, with some dwarfed *Quercus marilandica*, scattered *Calmia latifolia*, some *Hudsonia* and *Arenaria*. Patches of *Chamaecyparis* in the distance.

Dec. 31 - auto trip Denver - Rocky Flats via Golden. Conspicuous tree in outskirts of Denver is *Populus sargentii*.

Green Mt. - a low mesa to left, above Federal Center, grassy, with very thin scrub on steeper places. Patches of snow in depressions and on steep places.

Hills around Golden bare and grassy, patches of thin brush, scattered pines on upper slopes, forest locally on ~~higher~~ tops - *Pinus ponderosa*.

North & South Mesas Golden, have caps of Tertiary volcanics which form fluted or columnar cliffs around tops.

The Hogback, a sharp narrow ridge formed by steeply tilted beds of sandstone, has clay between the beds that is mined for Coors pottery works.

Grassy hills north  
of Golden have abundant  
acauliscent caespitose Agaves.

Rocky flats area -  
shaly soil and stony  
soil sites of Brandon et al  
1941.

Stony site is a  
grassy flat with  
a gravel ~~and~~ fine  
gray material in  
interstices.

A rich grassland  
vegetation with  
*Andropogon gerardii*, a  
*scoparius*, *Opuntia*  
*nafinesquei*, etc.  
Old "mima mounds"  
with *Bromus tectorum*  
dominant. These very  
flat. Total relief about  
(first 2 photos are general  
views incl. a mound.)

The grass has been  
grazed very closely.  
(3 photos fairly close  
(2-3 m.) of general veg.  
then 2 of mound veg.)  
(3 more of general veg.)  
1 x of soil exposures at edge of rd.

The fine material in  
top 3 dm. of soil is fine  
sand or sandy loam, dark  
gray. A reddish clay  
is beneath this - all  
rocks filled.

This is all on a level  
terrace at foot of mt.,  
perhaps remnant of  
an old alluvial fan.

Pine seedlings colonizing  
part of this close to  
base of mt.

Coal Creek - open stands  
of small pines 4-8 m.  
clear to base of steeper slopes  
here, varying to grass  
without trees in small  
patches.

In Coal Creek Canyon  
snow on south wall,  
none on north. Forest  
varies to closed, and  
trees to 15 m. tall.

*Populus* along stream  
banks in bottom.

Up a bit are jagged  
rock cliffs, vertically  
jointed masses of granite  
with fewer smaller  
trees. Upward the pines  
give way in part to  
other evergreens, esp.  
on s. side.

Then canyon widens but still very rocky. Cottonwoods become more abundant. Considerable low shrubby veg. as well as grass in areas between trees.

Forest becomes better, canyon quite wide and shallow. Small patches of snow in forest on n. side, ground covered on south. Forest mostly pine but some blue spruce & *Pseudotsuga*. *Pinus contorta* becomes common as road emerges on plateau. Mostly an open to closed forest of *Pinus ponderosa* with scattered shrubs, but locally replaced by *P. contorta*. Lots of *Arctostaphylos*, ~~prostrata~~ *prostrate* juniper. A little aspen locally.

Center Roosevelt Nat'l. For.

Some *Pinus flexilis*, mostly *P. contorta* near first crest. Exfoliating granite.

Several views westward and several of small pines on granite ridge. Mostly *P. contorta*, both close and in distance.

Above Pinecliffe - open to closed forest of *Pinus contorta* trees to 10-15 m. 15-20 cm dbh., with some spruce, aspen in clearings and ravine bottoms.

Enter Boulder Co. at Pinecliffe.

Spruce becomes more abundant, locally dominant in canyon bottoms and on s. sides. almost all scrubby pine on n. sides of canyons.

Then some spruce even on south facing slopes. Patches of aspen, prob. sites of fires.

Snow general but very thin.

Slender closed *Pinus contorta* forest on south sides, more open and scrubby on n. side.

Snow thicker some on trees, as we go westward.

Beyond Frying Peak Obs.

Broad valley, plateau-like, with mainly lodge pole pine but with patches of aspen, locally fairly abundant.

Rocky canyons with open scrubby pine on rocky walls.

Blackhawk, Central City Hills riddled with mines. Vegetation here more cottonwood & aspen than pine & spruce. Hill to north of C.C. & B.H. is grassy with only a few scattered trees.

n. of  
Clear Cr. Canyon below very rocky with open scrubby pine. Some areas a scrubby grassy veg. esp. on S. w. or s. facing slopes.

Lower down the difference bet. the two sides very striking on n. side a thin grassy scrub and on s. side an open scrubby pine forest.

Lower down both sides have open scrub, with open forest on upper slopes on s. side.

Crossed to main Clear Creek Can. Deep rocky gorge with patches of brush a few trees on ledges. Slopes have ~~pine~~ forest.

Beaver Brook Cr. generally open to closed rather low forest (pine) occasional thin places or even grassy places.

Bergen Park - flat broad valley bottom with scattered pines and patches of pine.

in Our Lands - written 1960-61 - article by man from D.L.M. office Vail, CO on habitats of grassland in lava bed of Oregon.

evergreen and southward - rolling to hilly ground with open forest to marsh-land and grass, extends south along shallow valleys.

Shrubs along stream courses.

North fork of South Platte River s. of Mt. Logan.

Mosaic of sparse scrub and open scrubby pine forest on north side (s. slope of Mt. Logan). S. side mostly spruce forest,

some patches of aspen.  
Along toward South Park  
aspen becomes dominant -  
matrix of pure aspen  
with patches of conifers  
(series of photos at mouth  
end of South Park  
also broad aspens by air)

South Park is a great  
flat treeless valley  
surrounded by wooded  
mts. Two low ridge  
in it are wooded.

On hills to north of  
S.P. a mosaic of aspen  
and grassland - somewhat  
topographically related - like  
aspen parkland of north.

High range to west -  
Park Range - enormous  
area above timberline

South part of South  
Park s. of Weston Ranch rd. fairplay  
low relief feature with  
trees in grassland.

Curious pattern of aspen  
on lower slopes.  
(photos both in. e. and w.)

Flat country grassy  
some grass on hills.

South toward Salida  
flat area, sparse patch

of spruce in low  
spot. south fork of  
South Platte. Low  
sparse st scrub  
in places.

South of Trout Creek  
Pass the park land a  
open grassland gradually  
wrinkles out, slopes become  
steeper, covered by open  
pine forest.

Lower down the south  
and west facing slopes  
are covered by pinyon  
scrub forest, with  
gradual addition  
downward, of juniper.  
on north facing slope  
and in ravines piñon  
ponderosa and spruce  
come down lower, but  
then give way to pinyon.

Much Chrysothamnus,  
Cercocarpus in open  
spaces between trees.

Arkansas Valley -  
Buena Vista

Open piñon juniper  
scrub on slopes, grassland  
on flatter areas.

(photos of grain inside  
and outside of fence.) also of piñon

Outside fence -  
*Bouteloua gracilis*, *Sporobolus*  
 sp. *Chrysothamnus*,  
*Cirsium*, *Artemisia frigida*,  
*Eriogonum* sp., *Denekia*  
 cf. *riddellii*, *Salvia triloba*, *Aster* sp.?

Inside of fence almost  
 pure stand of *Bouteloua*,  
 but ~~so~~ grazed very close,  
 scattered *Chrysothamnus*.

Along Arkansas River  
 is scrub of talus(), etc. +  
 some *Populus* gallery in  
 grassy flats.

Lower down the pinyon  
 extends ~~all~~ over the fans  
 and flats.

Then open grass with  
 scattered cottonwoods  
 and cottonwood fl. gallery.  
 Hills with pinyon-juniper.

Below Salida canyon  
 narrow - truncated spurs  
 are rather bare on north side.  
 Pinyon-juniper general  
 otherwise except for talus.

Well down the Arkansas  
 the valley narrows to a  
 canyon, with pinyon on  
 upper slopes, dry ~~slope~~ in

53.5

dry rocky bottoms,  
 with stunted juniper,  
*Opuntia arborescens*,  
*Quercus gambelii*, etc.

The *Quercus* retains its  
 dry leaves.

This extends for some  
 distance. Then it opens  
 out, becomes partially  
 grassy.

Road goes up out of  
 canyon onto a terrace  
 that is mostly grassy,  
 with scattered *Yucca*,  
 pinyon. Rather thick  
 pinyon on slopes  
 and hills. A very  
 bare steep slope  
 to north.

Juniper extends  
 off onto bluffs with  
 a little pinyon -  
 esp. on sandstone knobs.  
*Artemisia tridentata*,  
 a very small depressed  
 form, on slopes of knobs.  
 2 mi. w. of Florence jet.

Jan. 1 - Colorado Springs  
to Ute Pass - Lake George,  
Mesas with scattered  
pines, small patches of  
*Quercus gambelii*, scattered  
*Cercocarpus*. Garden of the Gods (photos)

Ute Pass - thin scrub  
mostly *Cercocarpus* and  
*Quercus*, scattered pines  
on both sides of canyon.  
Upward more and more  
forest, first pine, then  
largely spruce.

Cascade - above this  
scrub on south facing  
slope, forest on north.  
(photos 3-4 mi. above Cascade  
on Hwy. 10 oak - *Cercocarpus*  
scrub).

Just above here photos  
of ridge showing north and  
south exposures - Green  
Mountain Falls. Forest  
on n. slope is mixed pine  
+ spruce (*P. ponderosa*).

A little above this  
the forest comes down on both  
slopes and only the flat  
bottom is grassy. Found  
only in small patches.

Hills on north have great  
grassy tops. Woodland Park.  
View of Pikes Peak.

Above here very shallow  
valleys - bottoms grassy,  
hills with *Pinus* wood.  
open forest (9000'), some  
areas of spruce. Then  
an open rolling grassy  
plateau, scattered  
patches of spruce + pine.

Divide, Colo. 9500' ±  
(2 photos across plateau  
to west.)

Down slight slope the  
spruce forest becomes  
more and more prominent  
in forest grass mosaic.  
some pine.

Country rock is  
a coarse pinkish, weathering  
granite. 3 photos of  
an outcrop of this with  
grass and open pine forest.

6 mi below Lake George on  
South Branch of South  
Platte R. (Sportsman's Paradise)  
± 8500'. (Habbler Cabin)

Steep cliffs and talus  
covered by *Pinus ponderosa*  
+ slender *Juniperus* sp., mostly  
pine, open forest. 10-15 m. tall  
shrubs of *Ribes*, *Jamacia*?, etc.  
(photos, perhaps 6).

Valley open, grassy -  
slopes on other side open woods.  
*Yucca* abundant on talus of  
Pikes Peak granite

7 mi. S.E. of Florissant - spruce forest on granite knob 2 photos showing closed and open spruce forest. This is dominant at this altitude. Some grass & small patches and clumps of aspen. Pine in ~~snow~~ drier spots, open or sparse or scattered.

Jan. 3 - Air trip Denver-Kansas City.  
East of Denver - very flat grassy plains, traversed by meandering streams and stream beds - water frozen where present.

This soon gives way to cultivation on an extensive scale, probably wheat. Dry stream beds, very few trees, at first no gallery wood, then a very little, deciduous. Trees around some house sites, occasional corrals. Open forest in bottom land of a sizeable braided stream bed, dry except for patches of water. Patches of open forest (*Tulipulus?*) along streams, but very rare. Some relief incised into plain slightly increasing

eastward. In areas of relief the cultivation seems to give way to pasture. Ponds formed by dammed ravines occasional.

Road pattern square or rectangular but interrupted by stream drainages.

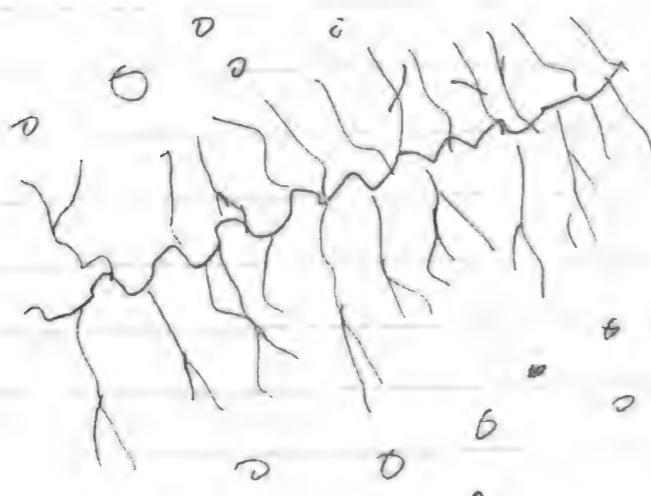
In distance to north a larger river bottom, probably the South Platte, seems to have some forest but not clearly visible.

Then an area with patches of rather ill-defined barchan dunes, aligned N.W.-S.E., mostly apparently bound by vegetation, but with some blow-outs. ending at a river or stream bed trending slightly N.E. or E., not meandering.

South of this a belt of moderate relief cut in a very flat <sup>undulated</sup> plain and draining into the stream. Next stream south is dammed to form a large reservoir (frozen). Some open forest along these river bottoms.

This near Colo.-Kans border.

This plains country is of alternating bands, trending somewhat southeasterly, of flat land and gentle relief. The relief is of ravine systems along closely meandering streams. The ravines are mostly at right angles to the general course of the stream.



Between these systems the ground is flat, cultivated, but with numerous scattered small depressions, roughly circular, apparently dry at this season showing as darker gray circular spots on the gray brown cultivated fields. Distribution of these is not at all regular.

Eastward some fields are slightly greenish. The field size becomes smaller, shapes more frequently rectangular than square.

Gully systems become more extensive in relation to the flat interplains, cultivation tends more to intrude into the relief dissected areas. The dissection mostly very gentle.

Forest still confined to a few of the larger stream bottoms where it forms a sparse interrupted gallery. A few small planted patches. Gallery and patches become more frequent eastward. Several reservoirs, one or two quite large. One or two towns, perfect rectangular arrangement.

Stream systems become larger, much more complex, main streams farther apart, relief closer to main stream, marsh more pronounced. Ponds abundant, formed by damming ravines.

The perfectly level interfluves have mostly disappeared and with them the small circular depressions.

Snow to north but along course none.

Fairly regular ~~g~~ but narrow gallery wood along most of the streams except the smaller ones.

The cultivation is now more in the bottom land than on the interfluves, which are more dissected. Main streams conspicuously meandering in flat flood plains, lined with very narrow gallery. Many complicated sloughs and ox bows. Main rivers trending southeast now.

Salina, Kansas. (turned <sup>turns</sup> to left). Low hilly areas between ~~the~~ river drainage.

Much contour cultivation where there is any relief.

Thin snow now.

Gallery forest more pronounced.

Junction of several rivers to form a large one flowing

n. e. Large city at jct.  
(Manhattan?).

Prominent low hills on both sides of broad river bottom land.

A curiously straight flood plain cut through the hills on north side, entering from n.w., with low bluffs truncating hills on either side of it.

Main river turns somewhat to s. e.

Gallery forest not at all uniformly distributed in streams of equal magnitude, but becoming more prevalent.

Terrain generally rolling, mostly contour cultivated, toward Kansas City.

Some small patches of woods on hills between streams, becoming more and more prominent northward. Central parts of ravine systems tending to be wooded, gallery extending into ravines.

Jan. 7 - Roaches Run

Rather few ducks, mostly pintails and baldpates, a few mallards.

More gulls ~~than~~ than ducks. Mostly ring-bills, a few herring gulls. Larger brown ones with dark tips to bills - herring gull females??

Some oil scum on shore in small peninsulas.

Jan. 10 - Sleepy Hollow

Several inches of fine dry powdery snow.

Evening grosbeak came to feeding station for a few minutes in forenoon.

Form without yellow on head, as in Audubon plate 424. (One seen in early spring several years ago).

Jan. 14 - same

2 photos of *Rubus cf. argutus* scrub.

Jan. 14 - 1.5 mi. beyond Centerville, near Rocky Run

patch of closed forest

of *Pinus virginiana*

about 1.5 m. tall, 10-20 cm. dbh  
mostly 7-10 m. apart.

A scattering of *Liriodendron* about same height. A sparse understory of rather suppressed *Juniperus virginiana* and occasional *Cornus florida* 4-6 m. tall, the *Juniperus* mostly quite slender and many of them bent down almost or quite to ground at tips by recent snow. Some of these seem dead, a few still erect and apparently unharmed.

Very sparse shrub layer mostly of *Acer rubrum*, young *Cornus florida* pruned? *Quercus* spp., *Fraxinus* sp. (n.).

Thin tangles of *Lonicera japonica* cover greater part of area, climbing somewhat into trees.

- |    |                              |
|----|------------------------------|
| a  | <i>Pinus virginiana</i>      |
| vc | <i>Fragaria virginiana</i>   |
| o  | <i>Liriodendron</i>          |
| o  | <i>Quercus marilandica</i> ? |
| a  | <i>Lonicera japonica</i>     |
| o  | <i>Cornus florida</i>        |
| ii | Similar sp.                  |
| ec | <i>Acer rubrum</i>           |
| ~  | <i>Ulmus</i> sp.             |

- ✓ *Acer negundo?*
- ✓ *Prunus serotina?*
- ✓ *Corylus (A.)*
- ✓ *Ilex opaca*
- ✓ *Polystichum acrostichoides*

many fallen pines,  
probably blown down,  
not very large ones.

Some of larger pines  
are "wolf trees".

42301

✓ 1

rare in *Pinus virginiana* forest

Jan. 14 - 2 photos of rows of  
*Juniperus* in field -  
on new hwy. beyond first  
overpass.  $\frac{1}{4}$  mi. w. of Bull Run

Jan. 14 - 2 photos of invasion  
of old field by *Juniperus*  
at Manassas Rd. intersection  
with new hwy.

Large *Juniperus* at  
edge, with pines, no  
second photo.

This was probably  
a pasture with scattered  
*Pinus virginiana*, and  
a rather open stand of  
young *Juniperus*. Planted  
by birds. Seedlings of  
pines, from the older trees,  
grew up and overtopped  
the juniper.

shrub 3 m. tall, sparsely  
branched, <sup>young</sup> stems green.

Jan. 14 - cut banks along  
new highway -

- (1.) *Phleum* dominant
- (1.) in scattered plants of  
*Lespedeza striata*,
- e of Manassas Rd. *Rumex* cf. *obtusifolia*
- Cichorium intybus*
- Conyza canadensis*, etc.

$\frac{0.5}{\text{mi}}$   $\frac{2}{\text{mi}}$   
e of Bull Run

Grass, prob. planted,  
incl *Bromus* sp. very  
little *Phleum*,  
scattered plants of *Lespedeza*.

$\frac{0.6}{\text{mi}}$  about same,  
2. Cut  
Run slightly more  
*Phleum*

✓ 2 photos.  
Also woody plants seen on any of  
cuts e. of Manassas road.

66

1962 Virginia

Jan. 21 - Wilkatt Mt. Farm -  
House built in 1972

Around pond - *Andropogon virginicus* is dominant  
but cover not complete.

Rock outcrop with  
*Parmelia colomiae*, *Cornu florida*, rather open.

Some areas of scrubby  
wood overgrown by  
grape vines.

Around small pond are  
a number of ruin of  
buildings.

Beyond this some fairly  
extensive patches of pine  
*Larix lyallii*  
*Abies concolor*  
*Abies amabilis*  
*Abies lasiocarpa*

*Chimaphila* in hardwood  
forest on greenstone on slopes

A lot of old chestnut  
logs & schist (a conglomerate)  
on slope in deciduous woods.  
- last of mossy surfaces  
of rock.

1962 Virginia Roddington 67

Feb. 10. Shenandoah Valley  
6 mi. n. of Melrose museum & cedar pt.  
3.2 mi. n. of Harrisonburg bypass.

Gentle slope w. of highway  
completely covered by  
an open stand of *Juniperus  
virginiana* varying  
from 15 cm to 2.5 (3) m. tall,  
varying locally in density  
from touching to as much  
as 3-4 m. apart. No obvious  
breakdown into size classes.

The field is perhaps 20 acres  
or more, and so far as  
can be seen by casual examining  
the cedars are approximately  
the same size and density  
over whole field.

Trees of medium ht/width  
ratio, no conspicuous variation.  
A few scattered very broad  
large trees along one side.

Between trees a sparse  
stand of *Andropogon virginicus*.  
*Dianthus*, *Aster ericoides*,  
*Hypericum sp.* (*Mussaenda?*)  
(no deciduous shrubs or seedlings)  
Limestone slope, some  
small exposures at surface

Hanging crevices very  
abundant on cedar.

1962 Virginia Rockingham Co.

Feb. 10 - Harrisonburg  
back of Eastern Mennonite  
College -

steep slope of hard  
limestone ridge -

On field land with  
thin *Andropogon virginicus*  
sparse stand of junipers  
of all sizes up to 3 m.

Small *Gleditschia* and

a few *Viburnum prunifolium*.

a dense thicket of  
*Ailanthus*, a very  
few large oaks, hickories,  
*Fraxinus*,

quite a few *Cercis*

On north half the juniper  
becomes very scarce but  
slope becomes covered by  
an almost closed thicket  
of scrub west of *Anelanthus*,  
*Ailanthus*, *Gleditschia*, *Prunus*,

a few crows  
a wood duck bird  
several killdeers

over 10 ravens flying n.e.  
over valley. Some discussion  
over whether they are crows or  
ravens, but notes were never those  
of ravens.

Virginia - Md.

Almond

4-8 m. tall, 3-5 (10) cm. dbh.

A well developed but  
irregular shrub layer  
of *Hymenocallis abutiloides*

A few patches of *Rourea*  
*japonica*.

At this end the slope is  
a staircase of limestone ledges.

A large part of the  
slope forms the drainage  
basin of a small ravine  
in which is a stream  
fed by a perennial spring.

Across a shallow valley  
is a gentle hill top slope  
of limestone, heavily  
pastured, with scattered  
but abundant small  
cedars.

Feb. 11 - south of North River, Anne  
Arundel Md.

Abandoned Naval Academy Dairy.

Old fields and hedgerows  
with *Lasiandra*, *Celtis*, much  
*Campsis*, *Rhus toxicodendron*,  
*Conocarpus japonica*, etc.

Very large *Thlaspi* species.

*Platanus*, *Lindernia*,  
*Prunus serotina*, etc.

70, 1962 Virginia

Feb. 17 - Between Centreville  
and Gainesville, on new  
interstate highway segment.

Several patches of  
young *Pinus virginiana*,  
seedlings 1 m. ± tall, showed  
a substantial percentage  
of dead trees. One such  
patch is at the Gainesville  
end of the segment. Not  
examined except from car.

exposure of Calvert formation.  
Large area of marsh,  
bet. Coin Island and shore.

Much wave erosion at  
foot of cliffs. 1 ~  
fallen by. dozens.

A small bay is cut  
off by a bar, forming  
a pond, with small  
outlet. Much *Baccharis*.

Dr. C. P. King  
210 P St. N.W.  
Washington 7, D.C.

1962 Maryland <sup>anne arundel Co.</sup> 71  
Mar. 4 Dog neck Farm,  
Murray's Bar,  
bet. Rhode R. & West R.,  
incl. High I. & flats -  
Huckleberry I. Corn I.

Peninsula with  
tulip, oak, and maple  
woods, scattered fair  
size holly. Tangles  
of *Limnopodium*, *Rubus*, etc.  
Somewhat grazed

Boris's Bluff - apparently  
an old burial ground.  
A bluff about 40' high,  
Indian living washed out

Mud, young pine in <sup>where water goes</sup> undergrowth.  
Patch of honeysuckle back  
of house and toward corn).  
Thickets of *Liquidambar*,  
some *Pandorea*.

Old ruin of mansion  
ringed *Rubus strumicola*.

Small cattail marsh  
with low beach ridge.  
Junipers around edge.  
Low blw, with a s. ma.

Old Miss Nancy Murray (93 years old) says that when her great grandfather acquired the place, about 200 years ago, it was in rather poor condition. He spread 100 loads of manure a year of black soil and 100 loads of manure on the field for some years and had a very substantial acreage in production of both wheat and tobacco.

Originally smaller acreage than now.

Big house burned some years ago. Barns and other farm buildings in poor shape. One empty house, one occupied by a couple who are cousin and husband, of Miss Calhoun. Very pleasant woman.

Evidently the two old ladies are much loved by the people in the area.

Tenant farmer farms the place. They have some cattle on it.

Aquatic vegetation has been increasing the last several years, acc. Dr. King. Corns & goes acc. Miss Murray.

Many raccoon tracks along shore between Murray wharf and house. Miss Calhoun says she tame a number of them, but that there are now gone. Said to be several deer on the place. They said that this morning there were over 30 swans in the water. I saw a hundred or so ducks, many gulls. Also a rabbit and many small birds. Miss Murray saw a blue grosbeak once; not long ago she saw a bald eagle sitting in a tree, watching the osprey nest. ~~He~~ Dr. King says he has seen the eagle steal fish from the osprey. Miss Murray says, once she saw an eagle swimming in the water near one of the islands. Her father rowed out to where it came ashore - it was too soaked to fly, had a very large eel, apparently too big to lift out of the water.

The farm is about 600 acres - a peninsula of sandy to clayey sediments, with very intricate coast line indented by ~~steep~~ branching creeks, dissected in parts into rounded hills and ravines with a relief of perhaps 10-15 m.

17-8 cultivated fields, some lying fallow, occupy half a mile of the place. The peninsula, margins of creeks, some areas between fields, densely wooded. The coast on which the house is situated has a strip of old growth but much disturbed forest. One *Quercus alba* 4-5' d.b.h.

Mashes at heads of creeks and creek branches

The ladies say there is only one good head - on photo appear to be two, on opposite horns of semicircular bay.

Fallow fields have considerable *Andropogon virginicus*.

The forest along the side near the house has considerable *Foncias japonica* and similar.

*Calmia* on slumpy slopes near old w. bank. said to be *Epigaea*.

*Liatris*, *Podophyllum*, *Hepatica*, ~~but nothing~~ & *Aquilegia*, but rather few other wild flowers.

Some of the woods appear on photos very dense, even fine textured, as though it were young *Pinus* - perhaps young *biglandosa*.

They say they had 3 acres of pines burned by careless picnickers.

Islands are wooded, especially the two larger, a willow relict reported blooming in August on Huckleberry Island.

A Mr. Fitzpatrick (?) owns a ~~nearby~~ place. A Mr. Frost apparently the adjacent one.

March 11 - Ivy Neck Farm,  
Cumberland

Many cardinals.

One flicker.

vulture, eating a dead opossum.

Flocks of ducklings offshore.

Great blue heron.

Many small birds.

Many cardinals  
around house come right  
up to window sill.

Miss Murray says that  
ground-hogs and skunks  
now common, were not  
known there 25 years or  
so ago. She says that  
there is a belief, that the  
ground hogs follow the  
skunks and use their burrows.

Back of farm house  
a marshy field with  
fucus, *Andromeda virginiana*,  
invaded by *Liquidambar*  
from a young forest  
nearby.

Soil in road greenish gray  
with much shell  
glaucousite

circular pond at end of  
road, in field.

Fence row with mixed  
juniper, sweet gum *Magnolia*,  
*Rosa multiflora*?, *Viburnum*?  
*Lonicera japonica*, etc.

semicircular bay bounded  
by low cliff about 3-4 m.  
lower 1/3 calcret formation, upper  
2/3 of greenish brown soil  
with oyster shells,  
narrow beach, some  
erosion in process,  
lime slumping of pieces  
of soil. Little vegetation  
on cliff face.

The adjacent fields  
heavily grazed, mixture  
of grasses with scattered  
tufts of *Andropogon virginicus*.

Second fence row with  
Junipers, Celtis, Robinia,  
Madura, Lonicera.

Along top of cliff  
scattered Macruos  
of all sizes. Viburnum.  
Diospyros, Malus.  
Robinia (a Cercis?)

Back of beach on <sup>land point</sup>  
horn of Bay, a flat area  
then a patch of wood of  
Ulmus, Celtis, Madura,  
Liquidambar, Prunus serotina,  
Ficus carica.

Flat back of beach  
zoned - *Spartina patens*  
about 15-18 m. on low sand  
ridge. Then lower ground  
with *Panicum virgatum*  
with much *Zizaniopsis*  
esp. around *Populus*.  
At distal end more  
*Spartina patens*.

In scrubby areas  
are small fleshy, in spite  
of a bitter cold wind.

Great ontrees along  
~~Ridge~~ River <sup>south</sup> of <sup>land</sup> Point

Back of marsh on  
~~Ridge~~ River ~~south~~ of land Point,  
open thickets, *Quercus*  
*falcata*, *Q. ilex*, *Baccharis*,  
*Rhamnus*, *Diospyros*, *Viburnum*,  
old stumps with woodpecker  
holes.

Small pond cut off  
by beach ridge.

Along ~~Ridge~~ River ~~south~~ a  
low cliff, 3 m. cut in a  
soft, very curiously mottled  
sandstone. Mottling  
result of brecciation  
and root casts.

Back of this, fenced off  
from open pasture is  
low, semi-open thicket  
of Ulmus, Madura, Junipers,  
*Myrica*, Liquidambar,  
locally tangled with Lonicera.  
Composition varies locally.  
In open areas much grass.  
Tendency to be marshy.  
*Apoxyllum cannabinum*.

One or two small *Pinus*  
*virginiana*.

Taller woods away from  
pasture, mostly Liquidambar.  
Occasional *Pinus virginiana*.

This place with bush  
of *Rhus typhina*, *Myring*

Farther along ~~the~~<sup>Rhode</sup> River  
shore, another point  
then a forest of *Pinus*  
*taeda* 20-30 m. tall, 10-25 cm.  
dbh. 1.5-5 m. apart.

This is a plantation, as it is  
in rows. Much *Lonicera*  
climbing about half way  
up the trees.

Considerable litter 5-10 cm.  
but little humus accumula-  
tion.

A few *Cornus florida*,  
more abundant farther on,  
some *Liquidambar* scattered,  
in undergrowth. *Vitis*  
very spars. Little under-  
growth.

This extends almost  
to end of the peninsula on  
~~Rhode River~~ side, on <sup>creek</sup> side  
much interrupted by  
areas of deciduous forest,  
this very. with *Lonicera*,  
*Vitis*, *Campsis*, etc. *Rhus* & *T. dentata*,  
small patch of *Spartina*  
at tip of peninsula.

Edges of <sup>forest</sup> creek marshy  
with much *Baccharis*  
*Panicum virgatum*

Planted  
25 years  
ago.

2 m. escarpment bet  
marsh and woods. corner  
Woods of *Ulmus* *Maculata*,  
large patch of *Alnus*, *betula*,  
Opening tangled with *Rubus*,  
*Rubus argutus* + *R. phoenicolasius*,  
*R. idaeus* (or *R. occidentalis*?)

Salt marsh inlets  
extending in from <sup>creek</sup>  
lined by deciduous wood.

Locally large *Hei*  
and *Juncus* in  
deciduous wood  
All this wood much  
opened up by cattle.

On upstream edge of  
*Pinus taeda* plantation is  
an area of mixed *P. virginiana*  
and *Liquidambar*, etc.  
considerable tree space in  
undergrowth here.

Then the pine drops out  
and woods are mostly  
*Liquidambar*, *Ulmus*, *Fraxinus*,  
Undergrowth largely *Viburnum*.

Patch of *Juncus*  
at head of one saltmarsh  
inlet, extending to pasture.

This near where corner  
of woods extends into field  
Many in of deciduous wood  
largely *Liquidambar* extends up over a  
few feet.

March 13 - Lamont Landtran.  
just at N.Y.-N.J. line in  
Hudson Palisades.

Ravine with mixed  
bemrock-hardwoods -  
*Acer rubrum*, *A. niagavm*  
*Fagus alba*, <sup>f</sup> *vegutans*  
*Betula lenta* *Tapu*  
*Cornus florida*, *Liriodendron*  
*Fraxinus sp.* *F. pennsylvanica*  
*F. nigra*, *F. cornuta*

Very flood plains  
are covered in spring with  
"trotters."

A little Pine, sassafras,  
but very little.  
Old shuck was recently  
burned.

Very narrow strip at  
bottom of cliffs! not part  
of sand valley).

Dry open margin is  
abundant at top of cliff.  
*Polyodium vulgare*.

Trees a in places  
dominant, in places  
almost absent, more  
generally forms an  
irregular second story.

Among shrubs several  
*Hibiscus*, *Kalmia* (n.)  
*Vitis sp.* *Lindera*.

Herbs - *Deschampsia*,  
*Mitchella*, *Donthonia*,  
*Conoplochlaena*, *Polygonatum* <sup>Yarrow</sup>  
U.S.C.G.S. benchmark, 1930  
on top of cliff at new point  
Very little hemlock on the  
top of the ridge - This mostly  
a rather scrubby dense  
forest of *Fraxinus* oaks,  
generally same composition  
as in ravine, but dwarfed  
by exposure, shallow soil, etc.

Ravine cuts through  
the palisades.

Many trees down because  
of storms. Much young  
growth, apparently because  
of storm damage, gives  
an appearance of second growth.  
Some old dead chestnuts.

Wood of very mixed age  
on back slope from rim of  
palisades into ravine.  
Mud oak chestnut

Some pine scars - charred  
stubs, etc.

Moss generally abundant, but very few lichens - a few thin crustose ones. scarcely any on trees. Some in fallen logs in ravine.

Some moss accumulation in hemlock groves.

In ravine, hemlock seems to be replacing the hardwoods.

The ravine stream sometimes dries in summer, though *Fontinalis* is common, so probably not dry in long.

*Corylus pellucida* in stream. (Trunks near southern limit). Range east where there is no shade, under hemlock.

Almost no hemlock on top along hwy.

Large tree in ravine and sheltered place.

Pier uses the area for about 2 field trips a year for his ecology course. No one else in Botany Dept. would likely be interested except Panspermia.

Apparently no one in zoology Dept. is at all interested in ecology except Dr. Moore who seems to be working some on frogs.

Problems will be, I think, to persuade Columbia Univ. to accept the area, and to arrange for Observatory people to act as custodians.

Whole area is fenced, except along cliffs. Gates intact but locks missing or broken (into Interstate Park).

There is a Rockland County College that might be interested - 2 year college.

Columbia Univ. College of education - has it a nature study or biology dept?

1962 New York

March 18 - Larchmont, Mill Pond  
An estuary cut off from  
L.I. bound by a sand bar.  
Filled in almost all sides.  
Silt - rocky shore.

Large place comes right  
down to the wall.

A few rocks, but mostly  
is tidewater - no private  
property.

As many as 3 birds  
seen on hand at once.

Pond probably 50' in  
some thickets & marshes at  
head of estuary. *Phragmites*  
& *Panicum virgatum*, & asbes,  
some *Spartina patens*.

The marshes are quite  
ramified, bordered in  
places by low wooded bluffs.  
There has been turning on  
some sides. One area has  
been filled in for reuse and  
will be made into a park.

Ownership very complicated.  
Three jurisdictions - Larchmont,  
New Rochelle, Mamaroneck.  
Some parts in public ownership,  
many private owners. Some  
development going on.

Some filled areas with  
*Aster*, *Panicum*, etc.

Old Reservoir - walled  
up all around. One side  
a wooded slope belonging  
to Larchmont Village, this  
running down to a narrow  
strip of woods running  
across the village - originally  
reserved for a freeway, but  
not used for this.

Ideal for a nature path.  
One wide place of about  
2 acres, beech maple with  
scattered large oaks. *Salal*,  
much young growth -  
maple, beech, black birch,  
mostly outwash of  
Manhattan schist.  
Small creek.

Young trees of beech, maple,  
birch, sassafras, etc. domes.

Otter Creek - a salt marsh  
with a tidal estuary.

*Spartina patens* marsh  
surrounded by *Panicum*  
& *Phragmites*.

Deep mud filled with  
clay shells. Very considerable  
tidal range, creek deeply  
incised, 1.5 m. visible at low  
tide.

Humpback Area - estuary  
with *Phragmites* marshes,

some filled in Marsh  
intended for a park.  
Some Spartina marsh.  
This on mud filled with  
clam shells. Incised channel

Nursery area -  
filled. 10 acre is being  
considered for park.

Duck Pond - a wide place  
in Shellback R. originally  
set aside for spreading out  
flood water. Many ducks  
stop here, though it is  
developed to edges.

Mar. 2<sup>nd</sup> - Wildcat Mt.

Entered through gate just back of main house. Some small patches of meadow grass near entrance in brushy forest.

Trail down moderate slope of broken greenstone. 1 juniper on rt. Considerable *Cornus florida*. A patch of trees have been cut, apparently several years ago. Spectacular growth of a white *Polystichum* (?) on stumps and trunks. Trees mostly oaks.

As soon as trail curves to right the forest is larger - mostly oaks and *Prunus pens.*, *P. cerasifera*, *Q. rubra*?, *Q. montana*??, *P. alba*.

Some dead chestnut, mostly fallen. Some hollow stumps and snags. One large standing chestnut skeleton on rt. of trail.

To right here a considerable admixture of scrub pines. Some *Liriodendron* and *Cercis* here. Recognizable herbs *Chamaephyllum maculata*.

*Anemone virginica*  
*Polygonatum acrostichoides*  
*Goodyera pubescens*,  
*Antennaria plantaginifolia*  
*parviflora*),  
Vigorously sprouting chestnut, bass.  
Many pine twigs clipped off by squirrels?) still green.  
Where there is an admixture of pine and tulip the oaks are neither large nor abundant. A little below the large chestnut tulip becomes dominant - mostly not large - one tree on rt. of trail about 3 m. dbh.

Below intersection of trail with jeep road is flowing spring and pump house. Large clumps of *Polygonatum vulgare* on rocks. Scattered clumps in other woods left of jeep rd.

Below road and to left of pump house is almost pure tulip forest.

Down road from this a patch dominantly *Pinus strobus*. Several freshly broken limbs and one tree broken off about 2 m. up - still green. Probably

from the heavy snow several weeks ago. Some small patches of snow still on ground. The pines are mostly *P. virginiana*, but there are a few *P. rigida* among them.

*Chimaphila maculata* is common in pine woods. In edges of pine wood are *Quercus alba*, *Q. prinus*, *Q. rubra*, *Q. coccinea*.

~~too~~ Prominent shrub larger of *Vaccinium c. corymb.* and young *Cornus florid.*, rather irregularly distributed.

Distribution of pine is rather patchy on the lower slopes. Patch of honeysuckle along road. Another larger one where road flattens out. Here the forest is very low and open. A very large *Pindera* bush is left of road in honeysuckle.

Fairly large flat area, apparently a terrace with scrubby woods, mostly deciduous, largely crooked with some. A large patch of *Vinca minor*

completely carpeting an area of 25 m. sq.

*Allium vineale* in open spots in thin woods.

Walked a compass line N<sup>W</sup> E of n. from the *Vinca* patch, across country toward an open area.

Honeysuckle locally forming tangles. Forest mostly deciduous, very scrubby, oaks, *Cornus*, *Cercis*, tulip, *Robinia*? (rabbit droppings)

*Asplenium platyneuron*. common.

*Cornus* locally dominant. Some patches of small pine.

Small patch of *Lycopodium complanatum* in pine patch.

Crossed brook.

*Platanus* trees in flat valley bottom.

Just beyond, a beautiful patch of *Lycopodium complanatum*, in tulip wood at edge of pine wood.

Thick but low pine wood. Litter and humus thin. In all tufts of *Cladonia*.

"W. of ree's common.  
The pine is on a low ridge. In valley on other side is deaduous wood. Bassasas replacing *Liquidambar*, oaks, *Ulmus*, *Celtis*, *Cercis*. Another brook. Then another in a small ravine. *Polytidium* on sides of ravine. *Asplenium platyneuron*. *Ulmus fulva*, Linden, *Taxinus*, *Cornus florida*, *Juniperus* (small), *Rhus typhina*, *Platanus*, *Rhus glabra*, *Viburnum* sp.

The south facing & the below the boundary fence is scrubby forest of *Pinus virginiana*, *Juniperus*, *Cornus florida*, *Cercis*, etc. *Cornus* abundant along fence. *Vitis* sp.

Low junipers tipped by snow. Followed the fence line up a hundred m. or so. Other side is a clear strip, then pine forest.

Then followed a course  $120^{\circ}$  e. n. back across the valley.

Rather thin woods

~~mills  
house~~

Mixed pine, *Cornus*, *Carya?* bassasas, on slope.

In bottom of basin with small streams, *Periodendron*, *Cercis*, a few oaks, locally patches of spruce in marshy ground with much illium vines. patches of honeysuckle, *Taxinus*.

On the slope just above here, where it becomes rocky again, is a forest of large oaks (and a tulip) some *Carya*? res to 5 dm. dbh.

A thin shrub layer of *Vaccinium c. corymbosum*, a few small *Ilex rubra*, *Cornus*, *Vitis*.

A broad leaved glaucous *Carex* (cf. *laxiculmis*?) common on rocky parts of slope.

Large herb of rock with luminant *Polyodium*.

From here on left about 250 m. is a large boulder.

Changed course to  $70^{\circ}$  e. of s. over large exposure of rock still through oak forest, largely

*Quercus prinus*, rather  
gentle slope. *Chionophila*  
Turkey vulture, crows.<sup>ma.</sup>  
After about 7 m. a fence  
running about south.  
Turned along fence.

Fence not in good  
condition. Small oak  
forest, with scattered  
pine on slopes below.

Some distance along  
fence are large rock  
outcrops, a wet seepy  
place. Fair forest of  
oaks, ash, tulip, etc.

A red cabin on other side  
of fence. A spring below it.  
Large *Platanus* above  
spring. An old road  
comes in to the cabin  
from the n.e.

Following this through  
young forest of tulips, etc.  
about 200-300 m. to a graded  
but muddy road. Turned  
sharp right, back  $20^{\circ}$  w. of s.  
Old racoon track in mud  
of road. S. g. tracks.

Road runs through open  
scrub forest, largely  
tulip, some small pines,  
*Rhus glabra*, *cornus*.

Considerable androgyn  
in places forming a closed  
grass layer.

another road ~~at~~<sup>near</sup> ridge top  
100 m. above. rabbit.

Lower road runs to dump,  
then an open gate into  
denser woods, and road  
runs down hill, 200 m. to  
rounded pump house.

Forest on slope above  
road, north of Pump  
house, largely young  
tulip, up to 30 m. tall  
and  $2\frac{1}{2}$  cm. dbh.

Went directly up slope  
from road, ~~over~~<sup>past</sup> fence to  
rounded ~~house~~<sup>gate</sup> house.

From hill north of this a  
view of the north part of  
preserve - lake Crawford  
house.

A belt of pine goes up  
over hill west of lake,  
sharply set off from  
deciduous forest on both  
sides.

Large pine patches on  
top of hill north of lake.

Above lake is an open  
field on slope below  
forest. Has vegetation -

Henry Kaltenbach  
Rt. 17  
Warrenton, Va.

Mar. 30 - Broadkill Beach,  
near mouth of Delaware Bay  
Rather little visible  
damage to beach houses,  
even those only a few  
yards back of tops of  
beach. Houses about  
25 yards back from  
high tide mark, 50 yds.  
from tide mark at 11 a.m.  
Low dunes here, where  
there are no houses, bound  
by grasses, about 1 m. ~~high~~  
high, low wave-cut cliff,  
showing dune cut about  
half way back. Back of  
this low scrub of *Juniperus*  
*maritima*, *Myrica c. canescens*  
scattered *Juniperus virginiana*  
about 4 m. tall. This stands  
back 100-110 m. to the edge  
of the salt marsh. The  
substratum is of low irregular  
dunes and shallow depressions.

Bulldozers are piling  
sand up in front of the houses  
also some sand being dug  
out of houses.

Along road across marsh  
even well back from high  
ridge debris caught in  
bushes and in barbed wire  
up to 2 m. 63 inches above ground.

On beach <sup>ridge</sup> are a few  
*Albizia julibrissin*, *Populus*  
sp. and *Prunus* scrapping  
up to 5 m.

In marsh well back  
a single seedling  
*Pinus taeda* 1.5 m. tall  
seems dying or dead.

Debris thrown up in  
fields 1-2 miles inland; well  
back of first patches  
of *Pinus taeda*, half way  
back to hwy. 14.

Along hwy. 14 are patches  
of *Pinus taeda* with  
considerable hardwoods.

Much debris in marshes  
along Broadkill River.

A number of vultures  
near Belltown

Nearing Rehoboth, fair  
size patches of woods,  
with varying ~~as~~ proportion  
of *Pinus taeda*, some  
dominantly *P. taeda*. Some  
young plantations of pine.

Deerly Beach - young  
*Pinus taeda* 200 m. back  
of beach is mostly dead.  
along st. 14. Much  
evidence of inundation.  
*Ilex* and *Juniperus* not  
much affected.

south along barrier bar

the dunes have been rather flattened out. Small pine grove on low dune ridge on both sides of Hwy. about 1 mi. S. of Dewey Beach. Trees browned but not dead. In and around pines are thickets of *Prunus maritima*, *Ilex glabra*, *Baccharis*. *Ilex* seriously affected by salt. 1). Much debris up to at least 1.5 m. above sand level.

In sea side trees are buried a base by sand brought in by storm. Much more browned toward sea.

Along beach at mid tide, a wide low berm with a shallow channel 2-3 m. wide behind it. One stump showing ~~in shallow~~ at edge of water in front of berm, many in channel behind it. (photo)

Cut top off stumps on sea side - *Pinus*, for sample. Cut chips from 1/2 of stump on channel side - all pine.

5 km up beach from this a peat exposure in front of stumps. Took sample of

this peat. Here the stumps of another forest, of 50 stumps looked at 9 were *Juniperus*, 41 pine.

Small sample of peat from top of root platform on a pine stump well below high tide level. The top of this peat is 12" below mean h.t.

4 photos of patch of pine and *Ilex* showing browning from storm.

Woody vegetation generally on landward side of old dune ridge.

One tiny scrap of a dune 3-4 m. high, bound by *Andropogon* sp., *Ammophila* sp.?, *Solidago sempervirens*, *Hudsonia tomentosa* (r.), etc. Seaward side of it cut off. Cornelie took photos.

At Rehoboth sand to depth of 3 m. was removed from beach back to perhaps 25-30 m.

Pines back several hundred m. or even more, show strong signs of browning. On highest area 5-10 m., just north of

Rehoboth the browning of needles, distally, is severe; also on lower ground back of remains of dune ridge. Dunes in many places spread into forest by storm, mostly sand crossed road. The trees in lowland here have been flooded. Have been getting browner each week since storm.

Flat about 300 m. back of dune ridge - loblolly woods, trees to 3 dm. dbh. 10-15 m high spaced 2-6 m. canopy almost closed. Trees look rather brown but inner bark alive.

Pit dug here about 3 m. from nearest tree.  
1-0 litter - ma.

0-1" dark gray clay

10-12 pale fine sand

12-12.5 dark brown stain layer of sand.

12.5-? dark gray brown fine sand  
15" water table in pit after a few minutes.

Just percents of bacteria  
The bases of the tree

4.10<sup>4</sup> m<sup>-3</sup>

begin to spread out into large roots about 70" above water and fine sand clay, and needles are tilted up a bit about bases.

One of highest rubbish in trees and bushes 67" from ground. Water possibly stood here for a while. Another 75".

Just back of former marsh out from Dupont Basin, Henlopen Acres.

at least below 10' contour. Has been drained somewhat by digging of ~~canal~~ Lewes and Rehoboth Canal. Is in angle between canal and banks.

Pines mostly *P. taeda*. A very few *P. virginiana*. These from almost dead to green. *P. taeda* mostly rather brown but some still greenish. *Juniperus* virg. common.

1 *P. rigida*, scarcely affected. *Flex opaca* somewhat affected, rare here.

Other side of canal - Holly Rd. younger than other place trees mostly 10-15 cm. dbh one wolf tree (*P. taeda*) about 3-14' dbh.

~~about~~ - Largely *P. rigida*, some *P. taeda*. 1-3 m. apart rarely 6 m. about ~~±~~ 3-10 m. tall or less.

Dug hole in largest opening 3-4 m. from nearest tree.

1-0 litter + mor  
0-2-3 gray brown fine sand  
2-3 lt. gray - brown fine sand mottled with mag & red brown and with blackish.  
Water table about 20" below mineral soil surface.

All largest trees are *P. taeda* maximum rigida about 2 dm. which is a wolf tree mostly 1m. or less.

Rather few small *P. taeda*. Taeda cones unusually small, also the rigida. Collected from wolf trees of both spp. 3' tall.

Dune sand species landward ~~face~~ in lens-shaped areas in a bedded sheet about 1 dm. thick, with a very level finely rippled surface.

Mar 31 Dewey Beach

Old Cape May formation surface gradually sloping, overlain by dune sand, unconformably. Uppermost 1-3 dm. of the ~~old~~ material black, highly humic, gradually changing downward to red-brown sand. Upper 1 dm. packed with shells of clams and oysters, not in growth position.  
(sample) (photos)

several hundred m. south is an exposure of very gently dipping ~~bed~~ blue clay mottled with red brown (Bag 4) overlying a gray sandy clay (Bag 3). Adjacent to this but contact obscure, is a dipping bed of black sandy peat without shells.



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1962 Delaware

Labels  
typed  
42302  
42303  
42302

March 30 - just north of  
Rehoboth Beach  
common in pine forest  
on sand flat.  
*Pinus taeda*

03 *Pinus rigida*

107

wrote labels

42302-3

Blanks / Blanks

has.

write labels

42302-3

Blanks / blanks

#

106

1962 Delaware

*Larix*  
sp. 2  
42-302  
42

March 30 - just north of  
Rehoboth Beach,  
common in pine forest  
on sand flat.

42302

*Pinus taeda*

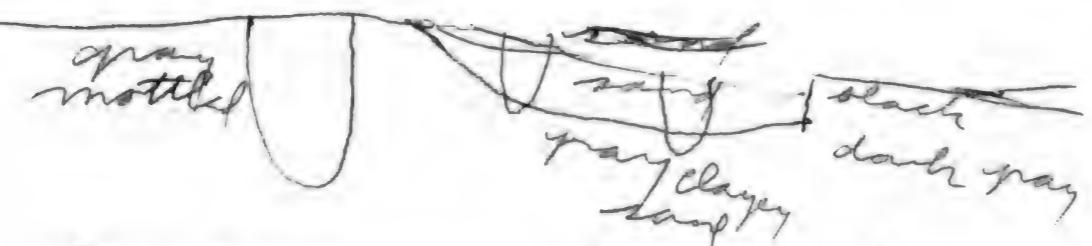
03 *Pinus rigida*

107

"wolf" tree, with many dead  
lower branches, 35 cm. dbh.,  
10 m. tall.

"wolf" tree 20 cm. dbh. with  
many dead lower branches.

Black layer dips more strongly than clay beds slightly lower but not much and a pit in the clay ~~also~~ 5 in. does not reach anything except mottled sandy clay.



~~Dark gray~~ Black  
material fades  
gradually downward  
to gray

Pits between clay and black material through sand get in a few inches through the beach sand into a clayey sand perhaps the same as bag 3.

about  $1\frac{1}{4}$  mi. s. a stump sample was taken at low tide mark. Top of Root platform is level at 7 $\frac{1}{2}$ " below high tide line. This stump

2.2 mi.  
7 $\frac{1}{2}$ "  
Silver  
Lake.

is about 900<sup>m</sup> seaward of present last pine in the small patch of scrub forest described on p. 100. Last fairly large one, about 4 m. 1/2 cm. above leveled at 1 ft. above mean h.t. line.

Now has 27" of sand around base, is fairly brown, but not dead. 1.6 mi. s. of Dewey Beach (south stop light).

14 - 15 mi. n. of this, near south tower, is a small patch of *Pinus rigida* 1-2 m. tall, thickened 8 cm. thick above base, top of root platform 4" above ~~the~~ mean h.t.

38.5  
61.4 + 3 ~ 14      20.8 - 21.2 - 22.0 -  
Farthest out fairly large 22.4  
*P. echinata* in grass

south of this for some distance sand was carried well across marsh.

Then a stretch still protected by dunes.

Then more sand, lobes of it stretch across road, and where no sand, still ~~back~~ grass, etc. up in bushes to 1 m. or more, showing this much inundation, at least, even though no sand deposited.

At Indian River Inlet some uprooted stumps on beach, and one still in place.

The area of salt-marsh that was more or less protected from sand deposition by some dunes that were not completely removed still was inundated to about 1.5 m. by water, as shown by the debris in the bushes. But little sand or silt was deposited on this. A sample of black mud from here was about 4-5 cm. thick, lying on medium fine sand.

Sample of black soil from front of *Pinus taeda*, a little *P. rigida*, *Quercus marilandica*, (*Q. galactea*, etc.) trees up to 50 ft. tall 1 ft. dbh. Thick layer of needles. Much honeysuckle.

Cape Henlopen - a hook-shaped cusp projecting northward into the bay.

The dunes along the seaward side have been partially stabilized by snow-fences, etc. so that they still stay, partly stabilized by grass & *Hudsonia*. Behind them in <sup>old</sup> depressions are *Myrica* patches and in deeper depressions patches of salt marsh.

Back of dune belt is a ~~mess~~ low pine forest, with open spaces with an irregular ground cover of *Hudsonia* and scattered dwarfed pines 2-3 m. tall, with wide spreading mat-like branches spreading over the ground (like the Hudson Bay spruce). A few small junipers, in clumps. Some *Andropogon virginicus* & *Panicum virgatum*.

April 14 - Glover-Archbold Park,  
above Reservoir Rd., Washington, D.C.

A broad wooded  
ravine with a small  
stream.

Deciduous woods of

- c-ea *Liriodendron*
- o *Prunus*
- la *Fagus*
- o *Quercus alba*
- o *Quercus prinus*
- c-ea *Platanus occidentalis*
- o *Quercus coccinea?*
- e *Pinus virginiana*
- l *Robinia pseudoacacia*
- Quercus rubra?*

Understory

- Cornus florida* (b)
- Fraxinus americana*
- Fagus*
- Acer negundo*

Shrub layer

- (a) *Lindera benzoin*
- (o) *Hydrangea arborescens*
- l *Acer negundo*
- c *Prunus serotina*
- e *Acer rubrum*
- lc *Rubus*.

### Herbs

- c *Dentaria laciniata* (f.)
- o *Arisaema triphyllum* (f.)
- lc *Podophyllum peltatum*
- l *Ranunculus ficaria* (f.)
- la  *Claytonia virginiana* (f.)
- o lc *Baxifraga virginica* (f.)
- o *Languiaria canadensis* (f.)
- o *Thalictrum thalictroides* (f.)
- o *Ranunculus abortivus* (f.)
- a *Nepeta hederacea* (f.)
- c *Alliaria* (b, f.)
- c *Allium vineale*
- c *Viola*
- lc *Galium aparine*
- lc *Luzula* sp
- l *Dodecatheon meadia* (b)
- Polystichum acrostichoides*
- o *Galium oblongifolium*
- l *Stellaria media* (f.)
- l *Miscanthus sinensis*
- Agrimonia*
- l *Duchesnea indica*
- l *Ornithogalum*
- l *Corydalis flavus* (f.)
- l *Rudbeckia laciniata*

### Vines

- a *Sonneratia japonica*
- lc *Rhus toxicodendron*

April 15 Wildcat Mt.  
Watery Mts., n.w. Warrenton  
E. of lake - on old road  
mixed oak forest  
trees to 3dm dbh, a few  
scattered pines. *P. virginiana*  
*Liriodendron*  
*Acer rubrum*  
*Quercus prinus*  
*Fagus*

Rock outcrops - one  
with *Polyodium*. Most  
with lichens, just  
before small meadow.

On rt. a patch of  
pine near fort.

Rt. fort  
Just before wall left  
rock ledges on rt. with  
*Polyodium*  
*Oryopteris marginalis*  
*Asplenium platyneuron*  
*Henckelia*  
*Arabis*  
*Aquilegia*  
*Brennekeana?*  
*Rosa carolina*  
*Tamfragia vng.*  
*Thalictrum*  
n rt. much larger  
rocks then on left, more  
\* *Chimaphila maculata*

list

- la *Lindera benzoin* (f)
- l *Hemerocallis fulva*
- l *Rubus occidentalis*
- c *Chimaphila maculata*
- ~ *Syringa vulgaris*
- o *Dioscorea* (fr)
- la *Polyodium vulgare v. vng.*
- c *Cercis canadensis* (b)
- o *Juniperus virginiana*
- o *Hedysarum albidum*
- ~ *Obione vng.* (b)
- o *Goodenia pubescens*
- o *Thlaspium thalictroides* (b)
- c *Dentaria laciniata*
- c *Antennaria plantaginifolia*
- f *Cusica rigida*
- l *Morstingra umbellata*
- c *Galium oblongifolium*
- l *Polygonatum aerostidoides*
- l *Veronica officinalis*
- l *Pyrola rot. ann.*
- r *Languinaris canadensis* (f)
- c *Liriodendron tulipifera*
- o *Acer rubrum* (f)
- lc *Fagus grandifolia*
- c *Quercus prinus*
- lc *Oryopteris marginalis*
- lc *Asplenium platyneuron*
- lc *Henckelia*
- lc *Rosa carolina* (f)
- o *Taxifraga virginicus*
- lc *Aquilegia Canadensis*?
- a *Cornus canadensis*
- la *Pinus virginiana*

on top of hill  
a *Pinus virginiana*  
forest.

a *Gramis floridana*  
~ *Ilex opaca*  
*Acer rubrum*  
*Fraxinus amer.* (in rd.)  
*Kassias* (in rd.)  
*Mitchella*  
*Lonicera japonica*  
*Antennaria plantag.*  
*Gordyera vel.*  
*Chimaphila umb.*  
*Cardamine*  
*Chimaphila umb.*  
*Vitis*  
*Polyptichum*  
cranes Ashles. velv.  
rabbit *Juniperus* very.  
towhee *Fraxinus*  
cangs sh.

(list cont.)

- ~ *Ilex opaca*
- o *Fraxinus americana*
- la *Lonicera japonica*
- lc *Chimaphila umbellata*

42307 *Cardamine*  
very local in *Pinus virginiana*  
forest

growing in a small clump,  
flowers white

Apr. 19 - Washington, D.C.

Examined fls. of *Stellaria*  
*media* - number of stamens  
varies from 3 to 5, even on  
same plant. Styles constantly  
3, petals 5.

at terrace to grass  
edge of sidewalk

42308

Apr. 19 - C & O Canal above  
and below Chain Bridge.  
Woods just starting  
to leaf out - elms and  
boxelder with small  
leaves, box elder with  
flowers, oaks with young  
catkins. *Lonicera*  
*japonica* very abundant,  
especially on the higher  
side.

Flowers seen (mostly on Chain Br. flats)

- Cardamine* sp. (large fl.)
- Glechoma hederacea*
- Famium* sp.
- Cerastium* sp. (large fl. narrow lobes)
- Viola* sp.
- Mertensia*
- Phlox divaricata*
- Senecio* sp.
- Taraxacum vulgare*
- Barbara*
- Lindera benzoin*
- Veronica* sp.
- Amelanchier* sp.
- Balix* sp.
- Cercis* (buds)
- Acer rubrum*

Forest in bottomland largely  
*Platanus*, *acer negundo*, and  
*Ulmus*. some *Masuria*, *Morus*,  
*Quercus alba*, *Liriodendron*,  
etc.

## birds

- Cardinals
- Flickers
- Crows
- Robins
- Kingfishers
- Purple grackle
- Starlings
- Bluebirds?
- Mourning dove
- Redwinged blackbirds
- House sparrows?
- Gulls
- Pigeons
- Ducks, Domestic?
- Mockingbird

Chain bridge flats are  
now dry, except for a  
few puddles and rock  
pools, but, judging by  
the rubbish caught in  
the shrubs, has been  
recently inundated to 3 m.  
or so.

Many dead small fish,  
10-15 cm., some larger, scattered  
on flats. Gulls common  
over river, but do not  
seem to have found the  
dead fish.

Apr. 20 - air trip Washington to Knoxville.

Apr. Knoxville - a large reservoir <sup>on course</sup> with a loop-like shape, dark brown water, a stream entering it with a bright yellow-green bloom(?) the green water sharply adjacent to but not mixing with the brown. Another reservoir on course very muddy.

An elongate one in distance to right appears blue, but may be just the distance.

Hills are along course, all very clearly oriented. No sign of green on the deciduous trees. Pine plentiful, both in patches and as scattered trees in deciduous forest. Some may be cedars, rather. Fields mostly green.

From lower altitudes - some tulip trees show green tops. These mostly on lower n.-w. slopes.

Hills are wooded, valleys and lower slopes clear. Soil varies from red to pale tan.

abundance of pine suggests that these hills are not limestone.

April 21 - <sup>5 miles out</sup> ~~E. Capitol St.~~ Central Ave.

Large swamps along stream - much *Roridea*.

*Erythronium americanum* flowering abundantly - evidently 3 clones -

one with all anthers black, subequal.

one, rare, with all anthers yellow, subequal.

one common on e. bank of stream, with anthers medium brown, 3 much better developed, longer.

May <sup>19</sup> - Hellen Creek

Bluff with mixture of hardwoods and hemlock

Back of it a *Pinus virginiana* forest, largely cut, but with one area in good shape.

Sloping up from this a deciduous forest.

At foot of bluff a muddy flat with *Aleuris*, *Impatiens*, *Woodwardia*, etc.

At end of this a marsh.

- general list of plants
- Tsuga canadensis*  
*Pinus virginiana*  
*Liriodendron tulipifera*  
*Fagus grandifolia*  
*Acer rubrum*  
*Kalmia latifolia*  
*b Viburnum acerifolium*  
*Quercus marilandica*  
*Ilex opaca*  
*fl Vaccinium vacillans*  
*fl Potentilla*  
*Lechea*  
*fl Viola*  
*fl Viola*  
*Nysa sylvatica*  
*Smilax glauca*  
*Sassafras albidum*  
*Pinus rigida*  
*Amelanchier*  
*Vaccinium corymbosum?*  
*Myrica*  
*fl Smilax rotundifolia*  
*Aralia spinosa*  
*Polystichum acrostichoides*  
*fl Cornus florida*  
*Chimaphila maculata*  
*Baptisia tinctoria*  
*Quercus prinus*  
*Quercus alba*  
*Quercus coccinea*  
*fl Rhododendron nudiflorum*  
*Carya*  
*Quercus*

- fl Vaccinium stamineum*  
*Juniperus ~~canadensis~~ virginiana*  
*Quercus falcata?*  
*Andropogon virginicus*  
*Quercus velutina*  
*Prunus*  
*fl Robinia pseudo-acacia*  
*Diospyros virginiana*  
*b Vitis labrusca*  
*Parthenocissus quinquefolia (hairy)*  
*Rhus toxicodendron*  
*Sonicera japonica*  
*Asplenium platyneuron*  
*Lycopodium complanatum*  
*Achillea millefolium*  
*Magnolia glauca*  
*Smilacina racemosa*  
*Dioscorea quaternata*  
*Uvularia perfoliata*  
*Athyrium filix-femina f. rubellum*  
*Osmunda regalis*  
*Dennstaedtia punctilobula*  
*Euonymus*  
*Alnus serrulata*  
*Lambdus canadensis*  
*Medeola virginica*  
*Viburnum prunifolium*  
*Ilex verticillata?*  
*Rubus argutus?*  
*Juniperus effusus*  
*Onoclea sensibilis*  
*Uvularia sessilifolia*  
*Cypripedium acaule*  
*Pteridium aquilinum*

	<i>Hypericum hypericoides</i>
	<i>Mitchella repens</i>
	<i>Epipactis virginicus</i>
	<i>Osmunda regalis</i>
176	<i>Eupatorium perfoliatum</i>
	<i>Ludwigia alternifolia</i>
176	<i>Juncus</i>
	<i>Woodwardia virg.</i>
	<i>Carex</i>
	<i>Panicum</i>
80	<i>Gaultheria procumbens</i>
	<i>Goodyera pubescens</i>
	<i>Monarda</i>
	<i>Campsis radicans</i>
	<i>Lindera benzoin</i>
	<i>Impatiens</i> sp.
	<i>Rosa</i> sp. <i>polystriata</i> ?
	<i>Equisetum arvense</i>
	<i>Fallopia</i> sp.
	<i>Rumex crispus</i>
	<i>Ceratium</i>
	<i>Stellaria</i>
	<i>Eupatorium</i>
	<i>Dianthus spicata</i>
	<i>Carex</i> sp.
	<i>Botrychium</i> sp.

(To Hellen Creek - turn off  
rt 2 at Appeal (Costers  
Rd.) sharp right, not  
on Costers Rd.) go .9 mile -  
Hemlocks on left (just  
before marsh) after  
a number of houses)

Fairly uniform	<i>Pinus virginiana</i>	woods
	<i>Acer rubrum</i>	1
	<i>Baptisia tinctoria</i>	3
	<i>Smilax glauca</i>	4
	<i>Pinus virginiana</i>	7
	<i>Ilex opaca</i>	8
	<i>Sassafras albidum</i>	11
	<i>Quercus</i> sp.	12
	<i>Chimaphila mac.</i>	16
	<i>Quercus prinus</i>	17
	<i>Liriodendron tulipifera</i>	21
	<i>Carya</i> sp.	25
	<i>Amelanchier</i> sp.	41
	<i>Fagus grand.</i>	52
	<i>Vaccinium vacillans</i>	60
	<i>Dianthus spicata</i> ?	62
	<i>Prunus serotina</i>	63
	<i>Panicaria japonica</i>	64
	<i>Tsuga can.</i>	74
	<i>Mycica</i> sp.	96
	<i>Vaccinium stamineum</i>	114
	<i>Monotropa hypopitys</i>	115
	<i>Polystichum acrost.</i>	139
	<i>Hypolepidium compl.</i>	140
	<i>Botryopterium</i> sp.	145
	<i>Rhus tox.</i>	149
	<i>Monarda</i> sp. ?	208
	<i>Achillea millefolium</i>	219
	<i>Parthenocissus quinquefolia</i>	229
	<i>Goodyera pubescens</i>	272
	<i>Rubus</i> sp.	331
	<i>Solidago</i> sp.	337
	<i>Asplenium platyneuron</i>	340

<i>Mitchella repens</i>	374
<i>Pisoppyros virg</i>	417
<i>Cornus florida</i>	419
<i>Crataegus</i> sp.	501
<i>Robinia ps.</i>	529
<i>Viburnum acer.</i>	575
<i>Vitis</i> sp.	687
<i>Myrsia sytratica</i>	706
<i>Crataegus</i> sp.	738
<i>Viola</i> sp.	734
<i>Campsis rad.</i>	940
<i>Athyrium fil.-fom</i>	952
	— 1000

On road that turns right  
fork of road that branches  
left after St. Johns Church  
about 1/2 miles from fork,  
an osprey has a nest on  
top of a power line post.  
When approached it  
left nest, circled around,  
protesting, and came  
back repeatedly. Probably  
has eggs.

The open areas where the  
pine was cut are still  
quite open, much slash  
lying in them. scattered  
*Quercus velutina* (?) saplings,  
*Ledea*, *Hypericum hypericoides*,  
*Pteridium*, etc.

The remaining uncut pine  
woods have pines up to  
20 cm. dbh (wolf trees larger),  
and very sparse  
ground layer of *Chimaphila*,  
*Vaccinium vaillantii*,  
*Smilax glauca*, seedlings  
of *Quercus*, *Prunus serotina*  
*Striodesma*, vines of  
*Rhus toxicodendron* and  
*Lonicera japonica*. The  
other plants are either  
rare or local. *Polystichum*  
is rare except for a large  
colony where it is abundant.  
*Asplenium* is very local but  
common where found.

In the head of the main  
ravine is a spring - surrounded  
by an old barrel. Ferns  
are abundant around  
and below this - *Athyrium*,  
*Pennstaedtia*, *Polystichum*.

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1962 Maryland

Labels  
written~~May 10 - Hellen Creek~~

- 42306 *Stellaria*  
 sandy moist roadside
- 1 07 *Cerastium*  
 sandy moist roadside
- 1 08 *Oxalis corniculata* L.  
 sandy moist roadside
- 1 09 *Potentilla*  
 edge of woods near road
- 1 10 *Viola*  
 common in woods along  
 old trail in sandy soil
- 2 11 *Viola corniculata* Ait.  
 common in wet ravine  
 bottom
- 1 12 *Juncus*  
 common in sandy soil  
 in edge of woods near road.
- 1 13 *Lechea*  
 occasional in cleared pine
- 2 14 *Gaultheria procumbens*  
 local in cleared pine woods
- 1 15 *Potentilla*  
 in eroded ravine in cleared  
 pine woods
- 2 16 *Vaccinium vacillans*  
 common in cleared pine woods

Calvert Co.

129

- diffuse, inflorescence ascending,  
 flowers white.
- ascending; flowers white.
- flowers yellow; fruit  
 pointing upward.
- ascending; petals yellow,
- scarcely emarginate.
- flowers white, slight  
 black marking on lower petal.
- rhizome slender, horizontal.
- scapes erect; flowers violet.
- 10
- woods
- shrub 40 cm. tall; flowers  
 reddish green.
- ~~flowers~~ petals yellow,  
 scarcely emarginate.
- shrub 3-4 dm. tall, flowers  
 reddish green.

May 13 - Wildcat Mt. Preserve

- fl *Vaccinium stamineum*
- Castanea dentata*
- Nyssa sylvatica*
- fl *Polygonatum biflorum*
- Fraxinus americana*
- Botrychium virginianum*
- fl *Ranunculus abortivus*
- fl *Uvularia perfoliata*
- Cirsaea quadrangularis*
- fl *Viburnum acerifolium*
- Monoctropa uniflora*
- Polystichum acrostichoides*
- Dioscorea quaternata*
- fl *Galium aparine*
- Galium triflorum*
- Catalpa*
- Symphoricarpos orbiculatus*
- fl *Viburnum prunifolium*
- Brucea javanica*
- Celtis occidentalis*
- fl *Antennaria parlinii*
- Analis mucronata*
- Rhus glabra*
- fl *Thlaspium thalictroides*
- fl *Rhododendron nudiflorum*
- Hypoxis aurea*
- Gunnerus pininus*
- fl *Gaultheria procumbens*
- fl *Viola pedata*
- fl *Antennaria plantaginifolia*
- fl *Saxifrage virginiana*
- fl *Woodia*?

- fl *filix caroliniana*
- fl *Fragaria*
- fl *Cynoglossum virginianum*
- fl *Corallorrhiza*
- fl *Aquilegia canadensis*
- Dryopteris marginalis*
- fl *Arisaema triphyllum*
- fl *Comandra umbellata*
- fl *Carex*
- fl *Viola*

- May 3 - Wildcat Mt. Preserve,  
west of Bethel, 5 mi. n.e. Warrenton  
in second-growth hardwood  
forest, mostly oak.
- r= labels  
typed by H. C. Smith
- ✓ 42317 *Comandra umbellata* (L.) Nutt.  
very local, with *Vaccinium*
- ✓ 18 *Carex*  
rare
- ✓ 19 *Obolaria virginica* L.  
very local
- ✓ 20 *Cynoglossum virginianum* L.  
rare
- ✓ 21 *Aquilegia canadensis* L.  
rare
- ✓ 22 *Corallorrhiza wisteriana* Conn.  
rare *Symploca virginica*
- ✓ 23 *Silene caroliniana* Walt.  
rare, on rocks
- ✓ 24 *Dentaria laciniata* Muhl.  
abundant
- ✓ 25 *Woodsia*  
very local on rock outcrop
- ✓ 26 *Gaultheria procumbens* (Wang.) Koch  
common locally
- ✓ 27 *Vaccinium stamineum* L.  
common
- ✓ 28 *Viola pedata* L.  
locally common; on old almost  
obliterated wood road
- ✓ 29 *Antennaria plantaginifolia* (L.) Hook.  
very local
- ✓ 30 *Antennaria plantaginifolia* (L.) Hook.  
very local
- ✓ 31 *Vaccinium vacillans* Torr.  
very common

- ~~good~~ flowers white.  
glaucous; culms ascending.  
plants purplish green;  
flowers white.  
erect; corolla pale bluish.  
sepals and spurs red,  
limb of petals yellow.  
plant bronze-purple;  
lip white with purple  
spots.  
flowers pink.  
erect
- shrub 0.6 m. tall, flowers  
reddish green.  
shrub 0.5 m. tall;  
flowers white.  
upper petals very dark  
purple, lower violet.  
stoloniferous; ♂  
stoloniferous; ♀  
low shrub, 0.3 m. tall; fls. white.

134 1962 Virginia

- ✓ 42332 *Rhododendron nudiflorum*  
local (L.) Ton.
- ✓ 33 *Thalictrum thalictroides*  
locally common, on rocks
- ✓ 34 *Viola sororia* Willd.  
common in large grassy  
clearing, (also in woods)
- ✓ 35 *Viburnum prunifolium* L.  
occasional
- ✓ 36 *Antennaria parlinii* Fern.?  
~~✓~~ occasional in  
grassy clearing.
- ✓ 37 *Polygonatum biflorum*  
very local (Walt.) Ell.
- ✓ 38 *Uvularia perfoliata* L.  
abundant
- ✓ 39 *Ranunculus abortivus* L. var. <sup>abortion</sup>  
common, locally abundant

Fauquier Co.

135

- shrub 1 m. tall (others  
up to 3 m.); corolla pale  
pink with red tube, rather  
disagreeably fragrant.  
petals white.
- petioles erect, white  
willows; flowers bright  
purple.
- shrub 3 m. tall;  
flowers white.
- scapes erect; leaves  
green above.
- flowers greenish white,  
limb green.
- flower straw-colored,  
pendent.
- plant glossy green;  
petals minute, yellow.

*Labels*  
typed  
42330-42344

Bureau of  
May 19, 1962 Public Roads Administration  
property, Langley, Fairfax Co.

✓ 40 *Elaeagnus*  
common locally in  
thickets and open woods

- ✓ 41 (most)  
abundant on top of quartz ridge, in forest.
- ✓ 42 (more)  
some
- ✓ 43 *Acer nigrum*  
seedlings and saplings in tall mixed forest
- ✓ 44 *Morus rubra*  
one tree seen in mixed forest, understorey

gray-green

saplings 2-10 dm.  
slender tree 5 m tall.

1962 Virginia

<sup>Bureau</sup>

May 19 - Public Roads

~~Area~~ Tract. Langley

Just n. of CIA Bldg.

\* parking lot, a considerable area of very uneven semi open forest, largely *Pinus virginiana*, some *Robinia*, *Liriodendron*, *Juniperus*, *Sassafras*, etc.

thoroughly tangled with *Lonicera japonica*, *Rhus toxicodendron*, etc. *Vitis* sp.

The pines look very sick - practically all old needles have fallen or dried up. New branchlets 5-15 cm. long are rather twisted and the needles are only 1 cm. or so long.

Seedlings and saplings of *Ailanthus*, *Platanus*, *Sassafras*, *Robinia*,

*Fraxinus americana*, *Cornus florida*, *Acer rubrum*, *Acer negundo*, *Celtis*, *Rhus typhina*

The open space has a knee deep blanket of *Lonicera* and *Rhus tox.*, with scattered *Rhus typhina*, *Sassafras*, and *Rubus argutus*.

Fairfax Co.

Near P.R.A. lab bldg.

is some open grass on rolling hills, around it more choked tangled scrub forest of *Juniperus*, *Robinia*, *Gleditschia*, *Acer rubrum*, *Acer negundo*, *Pinus virg.*

Back of lab, toward river, forest is still very irregular, partly open, with much more *Cornus florida*, some *Juglans nigra*. considerable *Diaeagnus umbellata* (?).

Undergrowth much less tangled in thicker parts, still much *Lonicera*. A few *Fagus* seedlings.

*Mitchella* abundant under pine. *Antennaria*.

Many seedlings & saplings of *Acer*, *Liriodendron*, *Carya*, *Cercis*, *Fraxinus*, *Sassafras*, *Cornus*, *Ulmus*, *Quercus*, *Carpinus*, *Fagus*, *Mrysia*, *Prunus*.

in a considerable area of small pines, up to 15 cm dbh, 15 m. tall.

May 20 - same.

Across fence several hundred m. back of lab. bldg. on a knoll is a fine grove of oaks - mostly *Quercus alba* and *Quercus prinus*.<sup>a few Q. velutina</sup> There are trees ranging from 3 to 11 dm d.b.h. spaced from 4 to 10 m. apart, canopy almost closed - perhaps 5% of ground not covered by shadows with sun almost overhead.

One area on this knoll has only ~~any~~ sparse under growth and almost no ground cover. There is an open stand of *Pinus virginiana* saplings 1-3 m. tall, several of them dead.

Under this is a thin uneven stand of seedling of *Q. prinus*, *Q. velutina*? *Acer rubrum*, *Prunus serotina*, *Fagus*, *Q. alba*. *Carya*, 5-20 cm tall, with *Chimaphila maculata*. *Carex* sp., *Mitchella*.

<sup>a few  
seedling  
pine</sup> The seedlings, or at least many of them have enlarged bases as though rabbits had bitten them off a few times. Very little *Lonicera*

This area is at the south end of the n-s. elongate knoll. scattered quartz pebbles - angular on surface of ground. Soil is dark gray.

North of this the undergrowth thickens correlated with a decrease in canopy apparently due to several dead trees. Here is the concrete foundation and basement of a small building perhaps 20x30' or smaller.

Around this a thick stand of saplings of *Cornus florida*, *Acer rubrum*, *Syiodendron*, *Nyssa*, *Pinus*, *Carya* sp., *Sassafras*, 1-4 m. tall.

abundant smaller seedlings of *Q. prinus* *Cornus*, *Syiodendron*, some *Haccinum varillosum*

North of the old building the saplings become taller, to 3-5 m., *Lonicera* becomes abundant.

There is a small patch of dead or dying pine 15+ m. tall.

The ridge becomes narrower, with excellent forest on its east slope.

Beyond the dead pines the oak forest becomes fairly good again on the top, with some *Q. falcata*. Canopy rather open, understory of sapling 2-4 m. tall, not so dense as farther south, well developed but uneven ground layer of *Vaccinium vacillans*, *Carynussacia baccata*, *Lonicera* etc., *Hyscum hypoleuca*.

A bare quarry (not in timber) with *Buxus argenteum?*, *Poly trichus?*

The gentle west slope from here has smaller forest but still large, uneven, with *Quercus prinus*, *Q. alba*, *Carya* sp., *Juniperus*, *Pinus virginiana*, *f. falcata*,

with a good *Vaccinium* layer ~~at~~ some *Comandra florula*, *Hordeopsis*, other saplings 2-3 m. tall, rather sparse.

One opening 50 m. across dominated by *Pinus* saplings 3-5 m. tall.

Below this a rather ~~good~~ forest on a gentle slope. *Quercus prinus*, *Q. alba*, *Q. falcata*, *Q. velutina*, small *Thysanocarpus* + *Ischaemum*. Sparse undergrowth mostly *Rhododendron nudiflorum* locally saplings 2-3 m. of *Euonymus*, *Nyssa*, *Pinus virginiana*.

Sparse *Vaccinium* layer with *Quercus* + *Carya* & seedlings *Hypoxis*, though no irregular moss layer.

Various other herbs, or *Anemone*, *Gentiana* cf. *virginiana*.

Considerable extent of this westward, canopy improving, less salal, more *Vaccinium* and azalea, scattered *Kalmia latifolia*, some *Gaylussacia*.

Many small pine saplings (coll. trunk of pine sapling 2-1 m. tall for ~~the~~ very young)

(this - about 1 cm. thick, has about 15 rings)

N. w. of ~~the~~ north end of hill is tall forest of *Quercus alba*, *Euodendron*, *Q. falcata*, *Carya* sp., over *Fagus*.

with about 85% canopy...  
and trees to 3(6) dm dbh.  
a fairly dense layer  
2-5 m high of *Cornus*,  
with some *Carpinus*,  
*Ilex*, *Liquidambar*,  
~~and~~ *Lindera*

rather dense ground  
layer of *Lonicera*, *Vaccinium*,  
*Hepatica*, *Mitchella*,  
*Lolodaphe caerulea*, *Hypoxis*,  
*Galium triflorum*, may spp.,  
*Parthenocissus*, *intervallis*,  
*Horacium venosum*, etc.,  
*Desmodium*, *Stellaria*  
*pubera*, etc. and  
seedlings of oaks,  
*Corylus*, *Brunnus*, etc.

This comes down to  
a deep ravine with  
pools of water.

On other side seen  
very large *Liquidambar*  
and *Luglans* but  
mostly dense tangle  
such as less yesterday.

Variations in the oak  
woods describe above  
extend around the north  
end of the hill and  
down to a small stream  
just S. of Parkview  
fence.

Undergrowth along  
the stream is richer  
Forest has *Platanus*.  
*Asimina* is common  
also *Ulmus*. A tiny  
substantial concrete  
bldg. along stream - roof  
is good.

Survey line, apparently  
for a power line cut across  
along stream - stakes  
have V = P Pole #.

On bank here above stream  
and old road are *Urticum*  
*pedatum* and *Polygonatum*.  
*Osmorhiza*, *Thelypteris*  
*heracleophila*.

Above this on east  
slope of ridge is fine  
tall, rather open  
forest of oaks, buckeye  
tulip, with a rather  
thick shrub layer  
2-5 m. tall. of *Cornus*,  
*Fagus*, *Carya*, *Das rubrum*,

with a good ground  
layer of *Desmodium*,  
*Viola*, *Penicillium* some  
but not much *Cnicus*,  
*Monilia*, *Solidago*, *Stellaria*  
*pubera*, *Dentaria*, *Mitchella*,

Smilacina, etc.  
Prosopis ~~virginiana~~, rare  
Up the hill some  
*Vaccinium*, *Hibiscus*  
*accipitrium*, ground  
layer rapidly becomes  
sparser. also shrub  
layer. Some *ryleca*

The top of the  
ridge - this end  
is a crest of quartz  
outcrop - ~~slopes~~ with  
a steep slope for about  
50' to east, gentle slope  
to west.

Here the ridge is  
wooded - long *Quercus*  
*prinus*. loose shrub  
layer of *Rhod.*, *nud.*  
etc. and a taller  
over layer 5-6 m. of  
*Cornus*. ground layer  
very sparse.

Down part way  
on east slope, just  
below steeper part,  
the forest is ~~very~~ dense.  
canopy at least 90%,  
with *Fagus*, *Liriodendron*,  
*Ailanthus*, *Quercus*,  
~~some~~ *Magnolia*, *Prunus*,

thin *Lonicera* ground  
cover with seedlings  
of *G. prunus*, *T. virginiana*,  
*Ailanthus*, *Fagus* etc.  
*Acer nigrum* some native herbs. *Betula papyrifera*  
seedlings. Fairly good *Cornus*  
layer 3-6 m. tall.

Many large fallen  
and rotted chestnut trees.

*Azimina* & *Ulmus*  
*fulva* to 5 m. tall  
becoming common south  
*Acer nigrum sapidum*  
(-1.5 m. tall)  
*Lonicera* become much  
less southward  
*Lindera*, increasing  
*atropurpurea*, *Circidea*,  
*Pseudophyllium*, *Parthenocissus*,  
*Cobaea scandens*, *Boluellia*,  
*Dentaria*, all become  
common. *Dioscorea* *quaternata*.

This entire area, from  
about 200 m. back of its  
BPR lab, ~~to~~ to the parkway  
land, would make a  
very interesting natural  
area. The remainder  
would be good for a  
picnic ground and  
camp ground.

May 20 - Weems Creek Reserve  
mixed oak forest, varying  
to dominantly tulip  
trees observed

- a *Vaccinium vacillans* (fl.)
- a *Lonicera japonica* ♀
- Fraxinus americana*
- a *Prunus toxicodendron* (fl.)
- a *Cornus florida* "
- o *Vitis*
- o *Quercus prinus* c
- c *Jlex opaca* " s (fl.)
- s *Parthenocissus quinquefolia* ♀
- s *Polygonatum biflorum*
- o *Euonymus americanus* (fl.)
- c *Viburnum acerifolium* (fl.)
- c *Amelanchier*
- c *Podophyllum peltatum* (fl.)
- Carya
- a *Liquidambar styraciflua* c (fl.)
- Robinia pseudo-acacia*
- ~ *Quercus alba* c
- Vaccinium cf. corymbosum*
- Smilax cf. herbacea* (fl.)
- Smilacina racemosa* ♀ (fl.)
- Quercus velutina*
- Acer rubrum*
- Amelanchier canadensis*?
- Polystichum acrostichoides*
- Sassafras albidum*
- Drimodium nudiflorum*
- Lycopodium lucidulum* ♀
- Mitchella repens* "
- Viburnum dentatum* s (s)

- Quercus falcata* c
- Tsagus grandifolia* s
- Kalmia latifolia* s
- x la *Hedera helix* q (s)
- l ~ *Uvularia perfoliata*
- o *Prunus serotina*
- o *Prunus avium* ?
- ~ *Amelanchier canadensis*
- ~ *Lambucus canadensis*
- ~ *Morus nigra* ?
- o *Lindera benzoin*
- ~ *Quercus coccinea*
- lo *Nyssa sylvatica* (s)

On upper part of west knoll is mixed oak forest fairly mature, with an understory of *Cornus* and *Ilex*, fairly prominent ground cover of *Lonicera*, with many other things, not very dense. Much *Rhus toxicodendron*.

To the east, in the rather flat somewhat lower area between the knolls, is an almost pure forest of *Liriodendron*, with a sparse understory of *Cornus* and *Ilex* and a dense ground cover of *Lonicera* and *Polygonatum*. A few *Carya* and *Quercus* do not reach the canopy. A few do. Some *Rhus toxicodendron*.

In one spot *Hedera* is abundant on ground and climbing on tree trunks.

Eastward on the east knoll oaks and hickories also lower, become more abundant, *Liriodendron* less. *Taxus* sparse becomes sparse, as does all ground cover. *Cornus* large still prominent but little *Ilex*. Much fallen crooked chestnut.

On east end, a patch of *Kalmia*, rather open, and a giant white oak, 4' dbh.

150

1962 Maryland

May 20 - Woods Creek,

42345 Annapolis

43345 *Ulmus americana* (L.) Nicewal (Nicewal)✓ 1 very local in *Biriodendron* forest

May 20 - Crescent Rocks

✓ 1 46 *Arabis*abundant in crevices  
of rock cliff

May 20 - Stony Man Mt.

slope above Skyland

✓ 2 47 ~~Rubus~~ in thin low  
canopy forest; mainly oak, on rocky soil.✓ 2 47 *Rubus*  
common

✓ 1 48

common along trail

✓ 3 49 *Pedicularis canadensis*  
very common locally, with #42350✓ 3 50 *Pedicularis canadensis*  
very common locally, with #42349✓ 2 51 *Rhododendron roseum*  
common✓ 1 52 *Carex*

common

✓ 1 53 *Anemone quinquefolia* L.  
common locally

#

✓ 1 54 *Cypripedium calceolus*  
common locally, with #42355✓ 1 55 *Cypripedium*  
common locally, with #42356

(G p. 154)

Anne Arundel Co.

151

56, May, 1962

flowers white

galea maroon, lower lip yellow

galea bronze-yellow, lower  
lip yellowshrub 2 m tall, flowers  
bright pink with red tube,  
very fragrant, clove scented.rhizome horizontal, brittle,  
white with brownish epidermis;  
flowers whitelip large, yellow, petal  
+ sepals greenish brown  
lip small, yellow,

1962 Virginia

May 22 - Stony Man,  
just above Keyland

*Cypripedium calceolus*  
common in large patch  
of *Osmandra claytoniana*  
Measurement of lip -

1 5/8" 11"

1 6/8" 11"

1 7/8" 11"

1 4/8" 11"

1 7/8" 11"

1 2/8" 11"

1" 11"

1 1/8" 11"

0 7/8" 1"

There is a general but  
by no means constant tendency  
for the smaller flowers to  
have the brownest sepals  
and petals.

The plants are  
commonest in the  
large colony of

Shenandoah Mt 153

*Osmandra* on very gently  
slope, but some are  
found in the mixed  
ground even above the  
edges of this colony.

The plants with  
very small lips (about  
1 inch) have little fluting,  
tend to have brownish  
sepals and petals. They  
look rather distinct  
but there is no break  
in any of the characters  
observed.

The leaves of the  
red (and black?) ones  
on the mountain are  
not fully expanded  
yet.

*Crinum virginiana* is  
in full flower.

On the cliff the  
*Saxifrage* is mostly  
not even showing buds  
yet, but one or two plants  
are ready to flower.

In a rather shaded  
vertical ravine on  
the north or northwest slope  
are quite a few plants  
of *Erythronium* selsigeri.

154

1962

Virginia

42356 Carex

✓ 1 common

✓ 57 Viola

occasional

✓ 58 Ranunculus

common

✓ 59 Lilium

locally common

✓ 60 Carex

locally common

✓ 61 Viola

occasional

✓ 62 Ranunculus

common

May 27 - Big Meadow

✓ 63 Leucanthemum

around building in new camp group

✓ 64 Callitrichis

in newly excavated ditch  
in edge of swamp, in very  
shallow water on gravel bottom.

✓ 65 Callitrichis

in newly ~~at~~ excavated  
ditch in edge of swamp,  
in very shallow water  
on mud bottom.

✓ 66 Rhododendron nudiflorum

occasional in mixed  
woods principally Quercus  
and Betula. (with #42367)

✓ 67 Rhododendron roseum

common in mixed woods, principally  
Quercus and Betula (with #42366)

Shenandoah Natl Park 155

flowers yellow

calyx reddish green.  
petals pink.leaves gray-green;  
flowers purple  
roots slender; petals  
yellow, glossy.

erect, somewhat glaucous.

shrub 1.5 m. tall; flowers  
white with pink tube,  
~~at~~ stamens and style,  
rather unpleasantly fragrant.shrub 1.5 m. tall, flowers  
bright pink, tube, stamens and style  
deeper pink; deliciously clove scented.

These plants are var.  
fraterns below the  
fruiting parts, but  
more appressed in  
the fruiting portion.

Crescent Rocks —  
the part most ex-  
posed to south has a  
fine display of  
*Phlox subulata* and  
*Arabis*.

May 27 Lewis Spring Falls  
Trail below Big Meadows Lodge

*Cypripedium calceolus*  
about length of lip

" "

16 mm.

136 mm.

Vine's oak forest

- Trillium grandifl.* (fl)
- Lycopodium complanatum*
- Zygia aurea* (fl)
- Ceratodon purpureus* (fl)
- Cypripedium calceolus* (fl)  
(sepals + petals maroon)
- Adonis amurensis*
- Agrostis capillaris decumbens*
- Linaria canadensis* (fl)
- Goodyera sp.*  
(coriaceous) (below trail)
- Stellaria pubera* (fl)
- Pedicularis canadensis* (fl)  
(both forms)
- Hedysarum occidentale* (fl)
- Vaccinium myrtillus* (fl)
- Dipsacus quaternatus* (fl - b)
- Gaultheria procumbens*? (fl)
- Smilacina racemosa* (fl)
- Rhododendron roseum* (fl)
- Zygia apetala* (fl)
- Thlaspi glaucum* (fl)
- Fragaria Virginiana* (fl)
- Ammannia viscidissima*
- Polypodium vulgare*
- Pseudolamiastrum*? (fl - b) (fl)
- Sanicula virginica* (fl)
- Lithospermum acuminatum* (fl)
- Leptocarpus pubipetiolatus* (fl)
- Scutellaria galericulata*
- Urtica pseudosasa* (fl)
- Actaea spicata* (fl)
- Erythronium americanum* (fl)

- Thlaspium polypetala* (fl)  
*Veronica officinalis*  
*Ranunculus abortivus* (fl)  
 + *Lamiastrum galeobdolon* (fl)  
*Lathyrus palustris* (fl)  
*Urtica dioica* (fl)  
*Lysimachia nemorum* (fl)  
*Persicaria alba* (fl)  
*Osmunda cinnamomea* (fr)

- Berberis occidentalis* (fl)  
*Phlox diffundens* (fl)  
*Diphylleia grayi* (fl)  
 + *Lilium*  
 - *dracunculus* (fl)  
*L. canum* aculeatum (fl)  
*Fallopia latifolia* (fl)  
*Achillea quadrifolia* (fl)  
*Parthenium integrifolium* (fl)  
*Hypochaeris glabra* (fl)  
*bedstraw* (i-f) (fl)  
 + *in sp. lvs* (fl)  
 (about past)  
*Berberis cf. hispida* (fl)  
*Fragaria* (fl)  
*Pinus betulifolia* (fl)  
*Equisetum laevigatum* (fl)  
*Thlaspi glaucum* (fl)  
*Ovalaria perfoliata* (fl)  
*Pteridium aquilinum*  
*Polygonum aviculoides*  
*Baptisia tinctoria*  
*Acer pensylvanicum* (fl)  
*aralia*

*Cypripedium calceolus*  
 in appal. Tr. bet  
 Lewis Spring & Big meadow  
 (USGS Flood Mark)

- 1/2 fl II  
 1 fl III  
 0 1/2 I

- Trail around the swamp-  
 fence area (fl)  
*Fragaria* (fl)  
*Mahonia polyantha* (fl)  
*Anemone quinquefolia* (fl)  
*Ranunculus* (fl)  
*Vaccinium vacillans* (fl)  
*Geranium maculatum* (fl)  
*Bornmu foemina* (fl)  
*Potentilla canadensis* (fl)  
*Antennaria plantag.* (fl)  
*Hedysarum caeruleum* (fl)  
*Uvularia sessilifolia* (fl)  
*Picea mertensiana* (fl)  
*Rumex acetosella* (fl)  
*Stellaria pubera* (fl)  
*Xenobiosis ligustrina* (fl)  
*Fragaria Virginiana* (fl)  
*Uvularia perfoliata* (fl)  
*Trollius grandiflorus* (fl)  
*Silene caroliniana* (fl)  
*Osmunda claytoniana*

*Zizia aptera* (fl)  
*Caltha palustris* (fl?)

*Quercus ilicifolia* (fl.)  
*Zizia aptera* (fl.)  
*Bryonia multiflora* (fl.)  
*Vaccinium stamineum* (fl.)  
*Vacc. vaccinoides* (fl.)  
*Lycopodium complanatum* (fl.)  
*Lycopodium obscurum*

*Chenopodium murale* (fl.)  
*Stiamanthus mucronatum* (fl.)  
*Arisaema atrorubens* fl  
*Viola eriocarpa* (fl.)  
*Stellaria pubera* (fl.)  
*Rhus nudiflora* (fl.)  
*Rhus roseum* (fl.)  
*Pedicularis caerulea* (fl.)  
*Geranium molle* (fl.)  
*Fragaria virginiana* (fl.)  
*Gerrardia amurensis* (fl.)  
*Cannus virginianus* (fl.)  
*Cynoglossum officinale* (fl.)  
*Limnacium racemosum* (fl.)  
*Ulmus grandiflora* (fl.)  
*Moranthemum canum* (fl.)  
*Pyrola rotundifolia* f.  
*Mitchella repens*

162

1962 Virginia

<sup>May 27</sup> same - around edge of swamp

42368 *Viola*

muddy marshy open place

11 69 *Ranunculus*moist but not wet ground  
under trees1 70 *Viola*moist but not wet semi-shade  
ground11 71 *Carex*

moist but not wet, semi-shade, ground

11 72 *falix*moist but not wet  
shrubby ground12 73 *Quercus alba*

moist but not wet ground

12 74 *Quercus velutina*

moist but not wet ground

11 75 *Lonicera dioica f. laxiflora* (Rehd.) Gray

open shrubby moist ground

12 76 *Antennaria plantaginifolia*

moist meadow

11 77 *Viola emarginata*

occasional in moist meadows

12 78 *Saxifraga pensylvanica* L.rare in moist ground  
among low bushes.11 79 *Pyrus coronaria* L.

occasional in thickets

12 80 *Vaccinium variegatum* Torr

very common

11 81 *Fragaria*

common in grassy meadow

Shenandoah National Park

163

flowers purple, lateral

- petals bearded at base

- roots very slightly  
fleshy; petals yellow, glossy.flowers deep purple,  
lateral petals bearded

shrub 1 m. tall.

small tree.

small tree, 10 m. tall,  
w. receding crown.- twining up through  
bushesflowers purple, center  
white, ~~lateral~~ lateral

- petals bearded at base.

petals white

shrub 3 m. tall, twigs  
spinescent flowers pink.- low bush, ~~30~~ 30 cm. tall,  
leaves glaucous beneath, corolla  
pale green.

164 1902 Virginia

42332 *Rhododendron roseum*  
✓ 3 occasional

✓ 83 *Prunus serotina*  
occasional

✓ 84 *Maianthemum canadense*  
common in moist shaded ground

✓ 85 *Viola papilionacea* f. *alba* Lora Grose  
local in cleared muddy place

✓ 86 *Poa*  
in cleared muddy place

✓ 87 *Viola cucullata*  
common in cleared muddy place

✓ 88 *Crataegus*  
abundant, forming thickets

May 27 - trail from Big Meadow  
to Lewis Spring Falls  
in second-growth mixed oak  
woods on rocky soil

✓ 89 *Fenestraria obovata* Muell.  
occasional

✓ 90 *Asclepias*  
rocky place

✓ 91 *Isomorpha claytonii*  
rocky talus

✓ 92 *Carex*  
~~sodding~~ on rock outcrop

✓ 93 *Vaccinium angustifolium*  
very local on rocky slope

✓ 94 *Antennaria*  
occasional

✓ 95 *Ribes*  
at foot of rock cliff

then. Nat. Park

165

shrub 2 m. tall; flowers  
bright pink, tubes,  
stamens and style deeper,  
deliciously clove-scented.

- small tree; flowers  
white.

flowers white.

flowers very pale lavender  
with somewhat darker  
center.

shrub 4 m. tall;  
petals white, anthers purple.

- ligules and disk rich  
lemon or butter yellow.

flowers white.

caespitosus.

1-2 dm tall; fruit immature.

shrub 7 m tall, fruit immature.

166 1962 Virginia

- 42396 Ribes  
 " on talus at base of cliff  
 " 97 Carex  
 on rock ledge

May 27 Lewis Spring Falls  
*Woodisia* af. *obtusa* (Sprng.) Lars.

- " 98 in rock crevices  
 " 99 *Polygonatum biflorum*,  
 in rock crevices  
 42400 *Thelypteris dryopteris* (L.) Linn. ex Rydb.  
 " very local in oak woods  
 " 01 *Pyrus melanocarpa*  
 on rocky ledges  
 " 02 *Prunus pensylvanica* L. f.  
 on talus of boulders

May 27 - north entrance to  
 Paols, s. of Front Royal  
 deciduous woods

- 12 03 *Celtis occidentalis*  
 " 04 *Rosa multiflora* var.  
 in edge of forest, climbing  
 in trees  
 " 05 *Rosa multiflora*  
 in edge of woods, climbing in trees  
 " 06 *Prunus cerasus* L. ?  
 in edge of woods

Shen. Nat. Park

167

slender shrub 0.5 m. tall,  
 fruit immature.  
 plant tufted, culms  
 spreading, leaves glaucous.

flowers whitish with  
 green tips

low shrub; flowers white,  
 shrub 1 m. tall

shrub 1.5 m. tall

flowers double, white

flowers single, pinkish  
 white.  
 small tree, fruit immature.

168 1962 Virginia

May 30- Wildcat Mountain

Plants seen on trail back of house

<i>Heuchera</i>	(fl.)
<i>Hedysotis purpurea</i>	(fl.)
<i>Senezia annua</i>	(fl.)
<i>Rhus Tox</i>	
<i>Botrychium virginianum</i>	
<i>Asplenium platyneuron</i>	
<i>Uvularia perfoliata</i>	(I.)
<i>Rubus</i>	(II)
<i>Lychneis</i>	(III)
<i>Asclepias</i>	(IV)
<i>Galium aparine</i>	(V.)

Wooded trail back of house down to wood road and to right along road. Mixed forest, oak and tulip, rather degraded.

"Seventeen-year locust," very common, 2 species present, judging by sound they make. Henry Dybas is studying them at Garneville and says there are 3 species, of which 2 usually occur together, in different combinations in different habitats.

Fauquier Co.

169

170

1962 Virginia

May 30 - Wildcat Mountain

2 mi. n.w. of Bethel, 5 mi. n.w.

of Warrenton

in second-growth hardwood  
forest on ~~slopes~~ west slope✓ 412407 *Antennaria parlinii* Fern.

" occasional along trail

✓ 08 *Galium aparine* L.  
rare✓ 09 *Uvularia perfoliata*  
common~~✓ 10~~✓ 10 *Potentilla canadensis*  
common in semi-open place✓ 11 *Carex*  
common✓ 12 *Asclepias*  
very local in open trail✓ 13 *Hedysotis purpurea* var. *purpurea*  
common, especially in trail,  
but also in forest✓ 14 *Rubus flagellaris* Willd. Det. Fletcher  
31 July 1986  
common, especially  
along trail✓ 15 *Silene*  
local in trail in open✓ 16 *Galium aparine* L.  
rare in trail

June 4

~~May 30~~ - Washington, D.C.✓ 17 *Corvus monedula*  
planted near Library of Congress

Fauquier Co.

171

Desert

Herdson 2 Blk

Herdson

Herdson 2 Blk

Herdson

Yonah Blk

Yonah

common  
long  
residue  
red,ng &  
elliptic,  
marginato-im  
narrower,  
narrower.

flowers

white

recurrent.

shrub 3 m. tall, densely branched.  
fruit green.

Theodore F. Bla

Theodo

Dessie

Mrs. Theodore F. Bla

Tonieva Bla

Fernie Ford  
Anthony Ford

170

1962 Virginia

May 30 - Wildcat Mountain

2 mi. n.w. of Bethel, 5 mi. n.w.

of Warrenton

in second-growth hardwood

forest on ~~slopes~~ west slope.142407 *Antennaria parlinii* Fern.

occasional along trail

✓ 1 08 *Galium aparine* L.  
rare✓ 2 09 *Uvularia perfoliata*  
common~~✓ 10~~✓ 2 10 *Potentilla canadensis*  
common in semi-open place✓ 2 11 *Carex*  
common✓ 2 12 *Asclepias*  
very local in open trail✓ 2 13 *Hedysotis purpurea* var. *purpurea*  
common, especially in trail

but also in forest

✓ 1 14 *Rubus flagellaris* Willd. Det. K. F. Kletter  
31 July 1966  
common, especially

along trail

✓ 2 15 *Silene*  
local in trail in open✓ 1 16 *Galium aparine* L.  
rare in trail

June 4

~~May 30~~ - Washington, D.C.✓ 1 17 *Corus mas*  
planted near Library of Congress

Fauquier Co.

171

leaves bright green above.

weakly ascending

~~deep~~ root crown  
deeply buried. stolons  
white, slender; capsule  
immature, 3-lobed,  
lobes black.stems ascending to  
erect, flowers yellow,  
petals somewhat emarginate.  
small loose tufts, culms  
ascending.flowers pale lavender,  
crown white.

flowers deep lavender.

stems trailing; flowers  
white.erect, corolla white  
recurrent.shrub 3 m. tall, densely branched.  
fruits green.

June 2 - Wabash bottom land  
above Rochester. Tall forest  
*Q. macrocarpa*  
*Q. nigra*  
*Q. velutina*  
*Alnus*  
*Q. palustris*  
*Juglans cinerea*  
*Platanus*  
*Acer saccharinum*  
*Celtis occidentalis*  
*Carya illinoensis*  
*Betula nigra*  
*Celtis laevigata*

In ground  
*Lolium* sp.  
*Rhus toxicodendron*  
*Viola cf. pedatifida*  
*Cypripedium acaule*  
*Rubus*  
 herb layer almost continuous

*Asimina*  
*Celtis occidentalis*  
*Celtis laevigata*  
*Cornus alnifolia*  
*Fraxinus* sp.  
*Crataegus*

shrub layer very sparse.

The elms are dead and dying,  
leaving a very uneven forest.

The land ~~so~~ is apparently  
subject to floods and  
silt deposit. George Fall,  
who was here a few  
months ago, reported  
fresh silt and no herb  
layer. Dr. Short, (Chicago),  
reports, in letter to  
Nature Conservancy,  
that trees are from 140 to  
170 ft. tall. One pin oak  
specifically reported at  
170 ft. I did not see  
any this tall, but  
some trees were really  
very tall.

Only a very hasty  
examination was  
possible.

June 7 - Robert Allerton Park,  
Monticello

Bottom land swamp  
forest along Sangamon  
River, flooded with  
muddy water. Forest  
looks very bad because  
of dead and dying elms.  
(Said to be from Dutch  
elm disease.)

June + Hellen Creek Preserve

- Cutover pine patch -  
bare sandy ground  
covered by a layer of mo  
2-4 cm. thick, with lichens  
of several kinds,  
scattered tufts of  
c Carex sp. o Lysedea sp.  
c Desmodium spp  
o Baptisia - undaria (?)  
c Dianthonia spicata (fl.)  
c Panicum sp. (various)  
o Lechea r.  
c Andropogon sp.  
~ Stylosanthes  
with scattered dwarf shrubs  
c of Vaccinium ~~or~~ caeruleum  
o Parthenocissus  
various seedlings  
Rubus c. caeruleum  
Chimaphila maculata (fl.)  
strongly invaded by  
c Acer rubrum (to 3 m. tall)  
Liriodendron (to 4 m.)  
Robinia (to 3 m.)  
Amelanchier (to 4 m.)  
Quercus macrocarpa (?) (to 15 m.)  
Pinus virginiana (to 2 m.)  
Myrica  
Fagus (to 2 m.)  
Aralia spinosa (to 3 m.)  
Rhus copallina (to 1 m.)  
Kalmia latifolia (1 missing.)

- 2 Vaccinium corymbosum  
2 Carya sp. (1 m.)  
1 C Fassafra albidum  
0 flex opaca  
2 Prunus serotina (5 m.)  
2 Quercus prinus (to 1 m.)  
2 Quercus coccinea (to 0.5 m.)  
2 Viburnum acerifolium

Vegetation generally  
very uneven in open.  
Pine trash fairly well  
decomposed

general list (from 1961-4)

- Juncus effusus  
Asplenium platyneuron  
Vitis vestivales  
Vitis sp.  
Euonymus  
Goodyera pubescens (e)  
Lysozodium implanatum  
Campsis  
Achillea millefolium (f)  
Apocynum androsaemifolium  
Gaultheria procumbens  
Sericocarpus asteroides  
Euphorbia corollata  
Vaccinium stamineum  
Smilax glauca  
Smilax rotundifolia  
Nyssa sylvatica

*Vernonia officinalis*  
*Krigia virginica*  
*Polygonum*  
~~*Saururus*~~  
*Ranunculus trifolata*  
*Diodia teres*  
*Rumex acetosella* (fl.)  
*Geranium carolinianum*  
*Bromus japonicus* (fl.)  
*Euphorbia hypericifolia*  
*Ambrosia artemisiifolia*  
*Carex lurida* (fl.)  
*Trifolium repens* (fl.)  
*Oxalis* (fl.)  
*Plantago lanceolata* (fl.)  
*Rubus ssp. argutus*  
*Cirsium ~~strigosum~~ strigosum* (fl.)  
*Chrysanthemum leucanthemum*  
*Holcus lanatus* (fl.) (fl.)  
*Lambertia cerasoides* (fl.)

General area of Appeal -  
Edsby & south.

Locally evidence of  
17 year cicadas.

~~No~~ No broken twigs  
seen near preserve.

Osprey nest deserted

Plants of marsh  
*Carex lurida* (fl.)  
*Imperata effusa* (fl.)  
*Galium* (fl.)  
*Scirpus* (fl.)  
*Panicum sp.* (fl.)  
*Sparganium* (fl.)  
*Carex (Ovalis)* (fl.)  
*Juncus* (fl.)  
*Juncus tenuis* ssp. (fl.)  
*Leersia oryzoides*  
*Saururus cernuus* (fl.)

- perhaps 2 syst.  
one individual has no  
yellow brown  
but eye very

south of appeal the cicada  
lamass is fairly general.  
Great numbers of holes,  
cast skins, wings  
and a few dead and  
dying cicadas on ground  
and low vegetation. Not  
heard singing and  
no very active ones seen.

*Asclepias tuberosa*  
common, coming into flower.

178

1962 Maryland

June 11 - Hesler Creek,

wet woods along roadsides  
ditch in sandy soil.

- 42418 Carex  
 2 occasional at edge of water
- 2 19 Ilex  
 occasional in edge of
- 2 20 Amelanchier  
 occasional in edge of
- 1 21 (fungus)  
 infecting fruits of Amelanchier
- 2 22 Salix nigra  
 occasional
- same - roadsides
- 1 23 Geranium carolinianum  
 uncommon
- 1 24 Oxalis corniculata L.  
 common
- same - marsh along creek
- 2 25 Carex  
 occasional
- 1 26 Juncus  
 common
- 1 27 Panicum  
 common
- 2 28 Carex lurida  
 common
- 1 29 Juncus tenuis Willd.  
 occasional on sandy shore

Calvert Co.

179

loose tufts, culms ascending,  
 - spikes pendent.

- shrub 2 m. tall

- flowers white.

small tree or shrub 3 m.  
 tall, fruit red, juicy,  
 pleasantly acid.

shrub 3 m. tall;  
 leaves green beneath.

flowers yellow, fruits  
 erect

loose tufts, culms almost  
 erect, vegetative ~~branches~~  
 decumbent with erect  
 branchlets

culms erect

180

1962 Maryland

42439 *Panicum*

- 2 common in edges of  
2 31 *Scirpus*  
abundant  
2 32 *Spartoganium*  
locally abundant  
, 33 *Juncus effusus*  
locally abundant  
2 34 *Panicum*  
common

+ 35 *Gaura* - ~~spicata~~  
~~rapa~~ or ~~sap.~~ roadside

3 35 *Galium tinctorium* L.  
common

same - ~~sandy~~ sandy roadside  
1 36 *Triodanis biflora*  
rare

same on wooded sloping  
side of ravine.

1 37 *Asplenium platyneuron* (L.) Oakes  
locally common

1 38 *Thelypteris noveboracensis* (L.) Nieuwl. (Nieuwl.)  
locally common

2 39 same - <sup>sunny</sup> cleared pine woods  
*Pyrus floribunda* Lindl.  
occasional in edges of

1 40 *Pteridium aquilinum* var. *latiusculum*  
abundant

1 41 *Krigia missouriensis*  
rare

Calvert Co.

181

culms erect.

culms erect, very  
sharply ~~angled~~  
erect

culms erect, tuete

culms erect plant  
purple white reflexed  
hairs at nodes.

flowers deep purple.

stems weak erect,  
flowers white.

flowers less purple.

shrub 1.5 m. to 4,  
fruit immature.

flowers orange

- 42442 (lichen)  
terrestrial on decomposing  
pine trash
- 43 (lichen)  
same
- 44 (lichen)  
~~stat~~ same
- 45 ~~Eriothrix~~  
same
- 46 *Parmelia*  
on fallen twig
- 47 *Parmelia*  
on erect dead tree trunk
- 48 *Parmelia*  
same
- 49 *Gaultheria procumbens* (L.) T. & G.  
occasional in edges of
- 50 *Panicum*  
occasional
- 51 *Stylosanthes*  
rare
- 52 *Panicum*  
occasional
- 53 *Dianthus spicata*  
common
- 54 *Cespedia*  
occasional
- 55 *Baptisia tinctoria*  
occasional
- 56 *Rubus*  
occasional
- 57 *Viburnum acerifolium*  
rare
- 58 *Vaccinium cf. corymbosum* (Gray)  
occasional *atrococcum* (Heller)

shrub 1.5 m. tall,  
glaucous fruit  
immature.

erect tufts.

flowers yellow.

erect tufts.

culms ascending.

stems procumbent; flowers  
lavender.

stems procumbent

erect shrub 1.5 m tall;  
fruit immature

shrub 1 m. tall, leaves glaucous  
beneath; the fruit black.

184

1942 Maryland - D.C.

by 20 ft

same - bottom of  
moist wooded ravine.

42459 *Athyrium filix-femina*  
*f. rubellum*

side of

1 60 *Lycopodium obscurum*  
very local no small colony seen in

1 61 *Osmunda cinnamomea* L.  
occasional

2 62 *Thelypteris novercoraeensis* (L.) Nieuwl.  
locally abundant in

~~fall~~

Jan 15 - Washington, D.C.  
in park across from State Dept. Bldg.

✓ 2 63 *Pyrus (Aronia)*  
planted

✓ 2 64 *Vaccinium corymbosum*  
planted

✓ 2 65 *Crataegus Myricoides*  
~~plus~~ planted

✓ 2 66 *Crataegus*  
planted

✓ 2 67 *Pyrus (Aronia)*  
planted

~~✓ 68~~

calvert Co.

185

radish reddish

shrub 1.5 m. tall;  
- fruit immature  
shrub 1 m. tall  
- fruit immature  
trimmed shrub 1 m. tall,  
(untrimmed ones to 3 m.)  
small tree fruit  
immature.

186

1962. West Virginia.

June 2 - Cacapon River

Penksley Springs

n<sup>o</sup> stony river bar

42+68

Elmus

very common

13+

69 *Uvularia*

local

same - wet mossy

on rocks below spruce

x 3 70 *Myosotis scorpioides* L. Det. Peter Hartley  
local11 71 *Clematis villosa* Ait.

occasional

12 72 *Equisetum hiemale* L.  
occasional

The gorge is well wooded, geologically diverse, with limestone shale and sandstone.  
trees seen

- b Pinus strobus
- o Pinus virginiana
- o Tilia americana
- o Fagus rubra
- ~ T. mühlenbergii?
- c Acer saccharinum
- o A. nigrum var. glaucum
- c A. rubrum
- c Ulmus americanus
- o Ulmus rubra?
- c Cercis canadensis

Hampshire Co.

187

shrub 3 m tall

flowers light blue

vine

stiffly erect

- c Ailanthus altissima
- o Fraxinus americana
- c Platanus occidentalis
- l Liriodendron tulipifera
- Hemerocallis fulva common all along
- Large flats in
- bows of rivers
- Great talus slopes
- and cliffs

- l Tilia heterophylla
- o Quercus prinus
- o Q. alba
- o Sassafras sylvatica

188 1962 West Virginia

June 24 - Cacapon River  
above Falls of the Cacapon  
in river-rank forest

42473 *Tilia heterophylla*  
var. occasional

13 74 *Catalpa* species  
rare, edge of water

12 75 *Oxalis grandis* Small  
local on sand banks

11 76 *Flex*  
common in edges

(Hampshire Co.

189

small tree; leaves  
dark silvery beneath,  
badly attacked by tineids;  
flowers

partly fallen small  
tree; flowers very  
fragrant, calyx  
maroon, corolla white,  
throat and lower three  
lips marked with  
network of purple,  
lower lip also with  
two dark spots  
leading down to two  
folds in throat,  
erect; leaves sour;  
sterile.

June 20 - Wildcat Mt.

## Plants noted:

- + *Lysimachia punctata* (fl)
- + *Polygonatum biflorum* (fl)
- t *Dianthus armeria* (fl)
- + *Sambucus racemosa*
- t *Eriogonum strigosum* (fl)
- t *Chrysanthemum leucanthemum* (fl)
- I *Allium vineale* (bulbs)
- t *Rhus glabra* (fl)
- + *Lysimachia ciliata* (fl)
- wc *Hedysarum purpurea* (fl)
- w *Smilacina racemosa* (fl)
- w *Botrychium virginianum*
- w *Bartsia vulgaris?* (fl)
- w *Viburnum nudifolium*
- t *Ambrosia artemisiifolia*
- t *Fragaria* (fl)
- r *Poa compressa*
- w *Dianthus spicata*
- t *Carex*
- t *Baptisia tinctoria* (fl)
- t *Cinnamomum*
- + *Vaccinium pallans* (fl)
- + *Circaea quadrangularis*
- + *Parthenocissus quinquefolia*
- + *Parthenocissus henryana*
- r *Viburnum acerifolium* (fl)
- w *Perichiera americana* (fl)
- w *Asplenium platyneuron*
- w *Chimaphila maculata* (fl)
- w *Polygala vulgaris*
- w *Quercus prinus*

- l w *Carex*
- l w *Languinaria canadensis*
- l w *Chimaphila umbellata*
- l w *Dennstaedtia punctilobula*
- r w *Asimina triloba*
- o w *Festuca obtusa* (fl)
- o w *Morus*
- n *Borago officinalis* (fl)
- r *Cryptotaenia canadensis*
- r *Anemone* b
- r *Pyrus malus*
- r *Aponogeton cannabinum* fl
- r *Asclepias tuberosa* b
- r *Delphinium nelsonii* fl
- r *Centauraea cyanus* fl
- r *Agrostis capillaris* s
- r *Rosa carolina* fl
- r *Fraxinus americana*
- r *Parthenocissus quinquefolia* fl  
(smooth)
- r *Asclepias syriaca* fl
- r *Melilotus alba* fl
- r *Rudbeckia hirta* fl
- r *Daucus carota* (fl)

## Crows

- Indigo bunting
- Eastern kingbird
- Mockingbird
- Robin

192 1962 Virginia

Lower slopes covered by a mix. oak - hickory-pine wood. trees not very large. shrub layer rather sparse locally thick. Ground with slabby rocks, thin accumulation of humus on it. ground vegetation not very dense but covering most of ground.

Pine seedling, locally common, even when shade is dense, but few of them reaching more than 2-4 dm tall.

In some areas the forest is more pine than hardwood. Here few or no pine seedlings.

#2477 June 26 - Wildcat Mountain  
Preserve

#2477 *Veronica*  
in <sup>moist</sup> meadow on top of mountain

same - roadside in woods near old dump,  
*Polygonum erectum* L.

78 79 *Delphinium ajacis*  
common

80 81 *Delphinium nigrum*  
common

82 83 *Borage officinalis* L.  
very local

Fauquier Co.

193

flowers lavender.

- plant ascending, somewhat  
erect, flowers deep  
purple.

flowers pink.

flowers bright blue.

194 1962 Virginia

- 45 same - in forest  
- salis, hickory with some pine
- ✓ 2482 *Dennstaedtia punctilobula*  
one large colony
- ✓ 83 *Chimaphila umbellata*  
one colony seen
- ✓ 84 *Sanguinaria canadensis*  
very local, in rocky areas
- ✓ 85 *Woodia? obtusa*  
rare, on rock ledge
- ✓ 86 *Polypodium vulgare* var. *virginianum*  
common on rocks
- ✓ 87 Carex  
rare on no rocky slope
- ✓ 88 Carex  
local on rocky slope
- ✓ 89 *Asplenium platyneuron* (L.) Oakes  
occasional
- ✓ 90 *Woodia? Obtusa* (Spreng.) Torr.  
rare on earth slope
- ✓ 91 Carex  
occasional
- ✓ 92 *Heuchera*  
near rocks
- ✓ 93 *Heuchera*  
on rock ledges
- ✓ 94 *Chimaphila maculata*  
common generally
- ✓ 95 *Lysimachia ciliata*  
a single rather large colony
- ✓ 96 *Smilacina racemosa*  
common
- ✓ 97 *Galium circaezans*  
occasional

Fauquier Co.

195

- rhizome buried, fronds  
ascending.
- leaves glossy green;  
flowers white.
- latex red; leaves  
glaucous beneath.
- green culms spreading.
- leaves very laeuous  
culms spreading.
- fronds erect
- spreading tuft
- scape erect, flowers  
cream color.
- scape erect; flowers  
cream col.
- leaves dull <sup>very</sup> dark green  
with white <sup>veins</sup> ~~teeth~~; flowers white.
- rhizomes buried;
- flowers yellow
- stems ascending from  
buried rhizome fruits greenish.

196 1962 Virginia

same - along old trail  
in second-growth woods.

- 42498 *Panicum boscii*  
X2 rare  
v1 99 *Galium circassianum*  
occasional  
v2 500 *Panicum*  
rare  
v2 01 *Sentellaria*  
occasional  
v2 02 *Hedysotis purpurea*  
common  
v1 03 *Hedysotis purpurea*  
common  
v2 04 *Carex*  
rare  
v1 05 *Poa compressa*  
common  
v1 06 *Narthonia spicata*  
occasional  
v2 07 *Ceanothus americanus*  
occasional  
X4 08 *Geranium maculatum*  
occasional  
v1 09 *Dianthus armeniacus*  
occasional  
v2 10 *Hedysotis purpurea*  
common  
v1 11 *Banica*  
occasional

Tangier Is.

197

- culms erect, arched  
at top  
flowers greenish-yellow.  
  
- corolla tube white below,  
purple above limb purple.  
flowers lavender  
flowers lavender  
culm spreading  
bluish green.  
  
erect subshrub; flowers  
white  
  
- flowers bright  
magenta pink.  
flower lavender.

198

199

200

green pond (flat bog)  
Kennedy R.  
Augusta Co.

Hedgerow Creek

Take off rt. at Lushby.  
After  $\frac{1}{2}$  miles and just past  
the river Clement turn ~~left~~  
After  $\frac{1}{2}$  miles bear to ~~right~~  
again and travel to stand  
next to road ( $\frac{1}{10}$  of a mile)  
Hedgerow on right.

Heller Creek

Take off Rt. 2 at Lusby.  
after 4 miles and just past  
St. John's Church turn ~~right~~<sup>left</sup>  
after  $\frac{3}{4}$ 's miles bear to ~~right~~<sup>left</sup>  
again and travel to stand  
next to road ( $6\frac{1}{10}$  of a mile)  
Hemlocks on right.

follow telephone cable  
to dead end & back  
around barn w/  
a low & tall wall to  
cattle yard then  
it into fields  
and house or left.

UN 7-5593

M-2  
x 214  
left. 28°  
SPB, west  
angle 21°  
sus. 10°  
angle 25°

green lily (plat bog)

Kennebunk R.

Augusta Co.

